DOCUMENT RESUME

ED 306 400 CE 052 349

AUTHOR Squires, Geoffrey
TITLE Teaching and Training: A Contingent Approach. Newland Papers Number Fifteen.
INSTITUTION Hull Univ. (England). School of Adult and Continuing Education.
REPORT NO ISBN-0-85958-017-2
PUB DATE 88
NOTE 116p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC05 Plus Postage.
DESCRIPTORS *Adult Education; Andragogy; Educational Philosophy; *Educational Theories; Foreign Countries; *Independent Study; *Learning Theories; *Teaching Models; Training
IDENTIFIERS *Contingency Approach; New Zealand

ABSTRACT

This paper analyzes teaching and training in terms of certain basic functions and the typical contingencies that affect those functions in practice. Section 1 shows the interrelationships of teaching, training, and learning. Section 2 explores the kinds of learning problems that the independent learner faces and how a planned course can help to alleviate them. Seven functions of courses are identified: selection, induction, structure, teaching, environment, materials, and assessment. Section 3 discusses how each function is affected by seven main variables or contingencies: rationale, regulations, resources, subject, students, staff, and setting. Section 4 describes the nine functions of teaching and training: motivation, orientation, demonstration, explanation, representation, activation, transmission, evaluation, and support. Section 5 discusses the nine contingencies that affect the functions of teaching and training: aims, content, level, self, student, group, physical context, institutional context, and social context. The final section explores briefly the implications of the contingent approach first for student learning, then for the training of teachers and trainers, and finally for research in these fields. Appendixes include examples of case material and articles on contingency in the management of organizations, the teaching and training of adults, and continuing learning in the workplace as well as 48 reference notes. (YLB)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

The University of Hull
School of Adult
and Continuing Education

ED306400

TEACHING AND TRAINING:
A CONTINGENT APPROACH

Geoffrey Squires

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

V This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Gwyn Harries-Jenkins

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

CE052345

Newland Papers
Number Fifteen

TEACHING AND TRAINING: A CONTINGENT APPROACH

Geoffrey Squires

1988

SCHOOL OF ADULT AND CONTINUING EDUCATION

UNIVERSITY OF HULL

© Geoffrey Squires

ISBN 0-85958-017-2

This is paper number fifteen in the Newland Paper series, planned primarily to publish the work of members of staff and research students of the School of Adult and Continuing Education. 'Newland' is the name of the district in Hull in which the University is situated.

PREFACE

This paper develops an approach to teaching and training which I first explored in two earlier papers in this series, The Analysis of Teaching (1982) and Learning to Learn (1982). The approach involves two assumptions. The first is that the function of the course, and the role of the teacher or trainer, is to improve on the natural capacity for independent learning which we all to some degree possess. Thus the basic questions about courses and teaching are: what is the student getting from this course that he would not get if he were working by himself? what is this teacher doing for the student that he could not do on his own?

The second assumption is that teaching and training are contingent activities, that the answer to many questions about them is: it depends. It depends on who, what and where one is teaching, and the paper outlines a framework for analysing these aspects of the work in some detail. The basic functions of courses and teaching have to be interpreted in the light of these contingencies; indeed the very distinction between teaching and training is largely a matter of contingent differences between the two in what is taught to whom and in what circumstances.

The paper may be read in either of two ways. Those who want to move from theory to practice should begin at the beginning; those who prefer to proceed in the opposite direction from practice to theory can begin with Appendix A and work back. Earlier and shorter versions of the paper have been given at several conferences, including a DES/UHA Anglo-Swedish conference on higher education, and an ESRC seminar on adult education and training. I have also used the approach with various professional and occupational groups, such as doctors, nurses and clergy. However, my main debts and thanks are, first, to the twenty-four people in a range of institutions and organisations who in recent years have helped me to develop my ideas through detailed case-studies and interviews, and some of whose contributions are quoted in Appendix A; and secondly to my own students on 'Return to Study,' BA(Ed.) and M.A. courses in this School. Theirs the trial, mine the error.

CONTENTS

Section One	TEACHING TRAINING AND LEARNING	1
Section Two	THE FUNCTIONS OF COURSES	7
Section Three	THE CONTINGENCIES OF COURSES	17
Section Four	THE FUNCTIONS OF TEACHING	30
Section Five	THE CONTINGENCIES OF TEACHING	42
Section Six	THE IMPLICATIONS OF THE MODELS	56
Appendix A	Examples of Case Materials	80
Appendix B	Contingency in the Management of Organisations	91
Appendix C	The Teaching and Training of Adults	97
Appendix D	Continuing Learning in the Workplace	104
References		106

1. TEACHING, TRAINING AND LEARNING

Education and training systems do things other than educate and train. The schools perform an important custodial or child-minding function, as quickly becomes apparent when school-teachers go on strike, and parents suddenly have to make arrangements to look after their children during the day. Apprenticeships, and some other forms of vocational and professional education, such as nursing, are a source of labour as well as a means of learning. Higher education is an opportunity not only to study but to mature, often away from one's family. Some adults go to classes for social as well as educational reasons, to get out of the house for an evening, explore a change of role, or to make new friends. Employees may go on courses partly to get a break from work.

Education and training systems also perform wider social functions. The qualifications they designate and award are used by employers as a means of screening and selecting job applicants, and indeed the level of qualification generally correlates well with lifetime income. Educational streams, particularly at the 16-19 stage, tend to emerge as employment streams. Much of what goes on in the schools can be described in terms of general acculturation or socialisation, and much of what takes place in post-school courses, especially vocational and professional ones, is a form of anticipatory or specific socialisation (1).

Such examples, of course, presuppose that we know what we mean by education and training, since we cannot say what education or training are not unless we can define what they are. Like other commonly used concepts, such as health, wealth and happiness, education and training are not easy to define in formal or precise terms. However, the consensus is that they have to do, at least overtly, with learning; they exist to promote, organise, facilitate and regulate learning; at any rate, they are usually justified in such terms. Of course, it is not just any kind of learning: the concepts of education and

training imply certain ends and means of learning, certain kinds of content and process; indeed the very distinction between education and training refers to differences in such ends and means. However, learning is at the heart of both activities.

Learning, in turn, is not easy to define, but the conventional definitions typically refer to both its process and content. It is a process of change, a relatively permanent change, in consciousness or behaviour which cannot be ascribed to other factors such as biological growth or the influence of drugs. And the content of learning is usually described in terms of 'knowledge' (knowing something one didn't know before) or 'skills' (being able to do something one couldn't do before) although it may also refer to changes in attitudes, values, ways of thinking or self-concept. Sometimes we will tend to use other verbs to describe changes of the latter kind, saying for example that we have 'come to realise' or 'grown to appreciate' something, but educationists will typically consider such changes as forms of learning as well; indeed the effects of a course often go beyond the more obvious acquisition of knowledge and skills, to affect what students believe, how they approach problems, and how they see themselves.

Psychologists have long been interested in how we learn, and systematic research into human learning is over a century old. Such research has produced various schools of learning theory: behaviourist, cognitive, information-processing, humanistic (2). Each school attempts to describe the process of learning and identify the internal and external factors which affect it. No one theory currently commands general assent, and there remain considerable uncertainties and disagreements among researchers about the nature of the process and the factors that influence it (3). However, it is generally agreed that, whatever the nature of the process, learning is a common and indeed natural and normal human phenomenon. Whatever the reason, and however it happens, human beings have the capacity to change and adapt their thinking and their behaviour in both small and large ways; indeed neither individuals nor the species would have survived so long if they did not possess this capacity, and the normality of learning is brought home to us when we encounter people who are sub-normal in this respect. Our learning takes place not only in formal educational or training settings, but in and through our

everyday lives, at work, in the family, through relationships, at leisure.

The ubiquity and normality of human learning have been stressed above all by the 'humanistic psychologists' such as Carl Rogers who asserted roundly in his Freedom to Learn: "Human beings have a natural potentiality for learning. They are curious about their world, until and unless this curiosity is blunted by their experience in our educational system" (4). Theorists from other schools tend to be somewhat sceptical about what they see as the unsupported and rather woolly optimism of writers such as Rogers. However, the normality of learning can be asserted not only in terms of innate drives such as 'curiosity' but in terms of the human need to solve problems as they arise in daily life; a somewhat harder-nosed explanation which is consistent with the cognitive psychologist's view of man as a natural hypothesis-former-and-tester, a kind of amateur, walking scientist (5). Natural learning, in this view, is a matter not of curiosity but of necessity, since human beings have to construct maps, models or algorithms of the world in order to operate in it. Human learning shows itself and results in the development of complex cognitive structures and strategies, some of which are regarded as 'common sense' or 'common knowledge'.

The most convincing evidence of the normality of learning, however, comes not from experimental psychology, but from the work of Tough on what he has called 'adult learning projects' (6). Tough, and others since, have interviewed adults in a wide range of occupations, situations, and countries, asking them one basic question: have you spent at least seven hours, over the last year, learning or finding out about something to the point where you could 'teach' another person something about it? Often people were initially unable to think of anything that would qualify as a 'learning project' in this way, but with some prodding, they were often able to identify one or more projects of this kind, ranging from the very practical to the more abstract.

Tough's work has been reported and discussed in a number of publications, and there is no need to describe it in any detail here. However, several points should be made. The 'learning projects' he described could be as various as learning how to cope with a sick

relative, plan a holiday or install double glazing; many of them were related to people's jobs or families, and were applied or instrumental in that sense. Many of them lasted more than the seven hour minimum; the average was in fact 90-100 hours (7). Most of them were individual rather than group (12%) efforts. But perhaps most significant of all for our purposes was the finding that only 19% of the projects were planned by a 'professional educator' and that less than 1% led to any kind of credit or qualification. It is little wonder that Tough describes this kind of informal learning activity in terms of an iceberg:

> We've looked at this total iceberg then and most of it is in the invisible part, the self-planned part. It is invisible to the learners; it is invisible to other people around them. It is a phenomenon that we are just not in touch with; it is not very common at a dinner party to say, 'And what are you trying to learn lately?' It is not something that you talk about. We talk about courses and conferences, but not the other kinds of learning. (8)

Other writers have also explored the nature and potential of 'natural' or informal learning. Kolb (9) has developed a model of learning which involves four basic elements: concrete experience; reflective observation; abstract conceptualisation; and active experimentation. He defines learning as 'the process whereby knowledge is created through the transformation of experience' (p.38) and argues that experiences, not formal educational inputs, are the point of origin of most significant adult learning.

Kolb's work on what has come to be called 'experiential learning' has partly underwritten attempts in both the U.S. and the U.K. in the last decade to assess and accredit such experiential learning among adults (10). Such work has been motivated by the realisation that many adults, particularly older ones, know things and can do things without having the formal certificate to prove it, often because formal educational opportunities were more limited when they were younger. The accreditation of experiential learning aims to give credit not for experience, but for what people learn from it, where it corresponds to what they might learn on a formal course. The process is a detailed and often painstaking and time-consuming one --- a kind of

individualised assessment --- which goes through four main stages: systematic reflection on experience, identification of significant learning, synthesis of evidence to support the claim, and assessment for accreditation (11). Whatever the arguments for and against the accreditation of experiential learning, they are all indirect evidence of the normality of informal adult learning.

A rather different argument has been advanced by Riegel (12) who extends Piaget's various stages of learning beyond the formal operational stage to include what he terms a 'dialectical' stage or type of learning in adulthood. He contrasts this with the rather formalised, abstract learning typical of much of the education system, especially higher education, and suggests that much adult learning involves a dialectic of the abstract and the concrete, the conceptual and the phenomenal. His ideas have been incorporated into some recent theories of 'andragogy' (13).

The importance of practice and practical learning as against 'theory' in various professional fields has also been explored in recent works by Argyris and Schon (14). While it is not easy to assess the full implications of their analyses, they imply that much of the knowledge that practitioners actually use in fields such as medicine, engineering, architecture and business is not in fact derived from theory or based on rules, but is situational, contingent and concrete. It is the product of action, and reflection upon action, rather than formal study, and it represents a shift away from an 'applied science' view of such fields to one which emphasises the 'reflective practitioner'.

The work of all these writers raises critical questions which cannot be addressed here. The essential point in terms of this paper is rather that they all point directly or indirectly to the fact that learning is in many ways a commonplace and normal activity, and that a great deal of informal or natural learning goes on all the time, at least among the adult population. Indeed the bulk of any adult's learning is likely to occur outside the formal education and training system. (It would be interesting to discover to what extent children also engage in 'learning projects' which are unrelated to their school-work.)

However, this does not mean that anyone can learn anything anywhere; far from it. Everyday conversations are full of the frustrations and constraints of natural learning, of references to not being able to get hold of the things one wants, or not being able to understand or use them when one does, of getting stuck or going round in circles, or having to give up in the end. Some of the problems that the independent learner faces lie outside his or anyone's power to resolve. There may be absolute shortages of money or time. Other priorities and commitments may undermine and eventually terminate the learning effort. There may be serious limitations in terms of ability or approach --- although one wonders how often 'lack of intelligence' or 'lack of aptitude' are artificial rather than real ceilings on achievement, which could be at least raised by careful teaching and counselling.

There are other problems, however, which could be resolved with help. The reasons why someone's learning effort does not reach a successful conclusion, or never gets off the ground, may have to do with difficulties which, in other circumstances, could have been overcome with external assistance. This points to a number of questions. Instead of the conventional psychological or educational question: why/how do we learn? we need to ask: why do we sometimes not learn? What kinds of learning difficulties do people encounter? Why does the natural learning process break down? Why do people give up? What is the pathology of learning?

Such questions by implication point to the role of formal education and training, as things which facilitate or unblock or enhance the natural learning process. What do people get from a course or from teaching or training that they would not get on their own? What does the teacher or trainer do that the student cannot do by himself? This seems to imply a residual or minimal view of education and training, as activities which only become necessary when natural learning is not enough, but this is surely a good point of departure in analysing any teaching and training, not simply adult education. For if formal education and training are to be justified in terms of learning (as distinct from any of the other functions they may perform) it must surely be because they constitute some advantage over informal, independent learning, and in some way enhance the natural process.

2. THE FUNCTIONS OF COURSES

Why do people go on courses? What do they get from a course or educational programme that they could not get on their own? In some circumstances, enrolling on a course is virtually obligatory, even if education is no longer formally compulsory. It may be a condition of continued employment or professional registration, or it may be expected of one, and constitute an offer which one cannot very well refuse. In other cases, the reasons for enrolling may have little to do with learning per se, and reflect other social or personal needs or urges. But if one sets aside such secondary reasons or obligations, one is left with the basic educational question: what is the justification of a course? What advance or improvement on independent study do such events provide?

One of the most obvious difficulties facing the independent learner is that of getting hold of the necessary learning materials --- books, manuals, tapes, visual material, and in certain cases equipment and facilities. Of course, a large and increasing range of such materials, both print and audio-visual, is available in today's shops, stores and libraries, or through mail order, but it is one thing for the independent learner to have access to these, and another to select what is right for him or her. It is not easy for the neophyte in a particular field to know if a given book or tape is about what he really wants to know, is pitched at the right level, and is reasonably coherent, unbiased and up-to-date. One of the basic functions of the course, then, is to select, collect and if necessary prepare the necessary learning materials, and even if a teacher or trainer did nothing else for the learner, he would already have done something useful if he did this.

Institutionalised courses can go much further than this, in providing accessible libraries and laboratories for students. In scientific and technical fields, it is usually expensive or impossible for students to provide their own equipment and facilities, and the institutional rationale for such courses is clear to everyone. It is of course sometimes possible for independent learners to share and learn from

one another's equipment, and this happens a good deal, for example, in the fields of home computing and amateur radio, which attract many twentieth-century auto-didacts. Indeed, in such fields, the equipment the institution can offer may be more dated than that which some adults own privately. In such cases the local shop or supplier can take on the role of an informal laboratory or resource centre for the local network, where enthusiasts meet and discuss the latest technology, and the shopkeeper combines his own interest with that of making a sale. But in general it is much more difficult to learn independently in equipment-based fields than in library-based ones.

The independent learner who goes on a course does not only gain access to selected materials and equipment; he receives teaching as well. There is someone to stimulate him, guide and structure his learning, answer questions, explain things, encourage him and respond to what he does. There are of course many informal teachers and trainers around who can do some of these things: friends, relations, shopkeepers, supervisors and mentors not only at work but in the rest of one's life. Many everyday conversations constitute small teaching episodes, although most adults would be surprised if they were told that they were teaching, just as most people who nurse a sick child or other relation do not think that they are 'nursing'. The activities, in each case, go beyond the designated and official role, a fact that underpins much of Illich's (15) critique of institutions and professions.

There are limits, however, to what informal teachers and trainers can do or are prepared to do. Too many questions, and the shopkeeper's or supervisor's patience will run out. If the process appears too difficult, people will usually give up. Besides such teaching is typically episodic and fragmentary; it is unusual for it to continue or cumulate over a longer period. Hence there is a need for people who will treat teaching as a primary rather than secondary role, who develop skills and expertise in it, who will persist even when it is not easy, and who see it as a progressive and cumulative process rather than merely a series of isolated episodes or encounters. The detailed functions of teaching and training will be explored in more detail in a later section; here, we need only note that it is one of the things that a course offers, or should offer.

It is not only the teacher or trainer who can stimulate and interact with the learner; it is the other students as well. A course should offer an environment which is conducive to learning. Again, while non-educational environments, such as work and the home, do not usually prevent learning altogether, and sometimes offer a neutral or vaguely helpful setting, they are not in fact geared to study: learning is not their prime purpose. Thus at work, the demands of production will in the end take precedence over the opportunities to learn, and in the home the business of maintaining the resources and rhythms of family life are also likely to take priority; indeed introducing study priorities into either setting can cause tensions and problems. Non-educational environments are also often rather distracting, both in the obvious matters of noise and intrusions, and in the more subtle, distracting cues which assail, for example, the woman who is trying to study in the house, and who feels guilty about 'things that ought to be done'.

What the course environment should offer is not only a physical setting which is geared to learning, but a social climate which is conducive and supportive as well. The independent learner is on his or her own; but on a course he or she will be in a group of like-minded, if not always agreeable or harmonious, people. But everyone in the group will, by joining it, have given an implicit kind of priority to the work at hand, in contrast to people 'outside' who may question the very time spent on learning. Course environments, then, should provide some advantages over other ones, but they can in turn be negative in their own ways. The group may never really cohere, or if it does, may become ridden with conflict; and problems like these point to the need for course organisers to have the necessary skills in group organisation and leadership. Likewise, the institutional environment, instead of providing a micro-climate conducive to learning, may in fact inhibit it in certain ways, through bureaucratic constraints, impersonal threats, or a generally forbidding ethos. Institutions, like individual teachers and trainers, need to ask themselves questions about the learning environments they offer.

Over and above the provision of materials, teaching and an environment conducive to learning, a course promises structure. At a minimum, this is simply a certain rhythm of learning and study: a timetable for classes, deadlines for essays and other work, the pattern of terms and

academic years. Simple as these may seem, they do supply a rhythm and pattern to study which is often difficult to create on one's own. The adult student in particular has many competing calls on her time and attention, and one thing that a course can do is to establish some counter-priorities. But the need for, and nature of, structure go further. The independent learner may find it difficult to get a general sense of direction in what he is doing, to see how one bit relates to another, to know what order to tackle things in, to know where the edges are. A structured course can help to meet these needs. It can establish general aims or goals, and with them a broad sense of purpose and direction. This does not necessarily entail specifying precise objectives, though those may be appropriate and useful in some cases. Secondly, a course can show how things fit together, how the parts constitute a whole, through providing an initial overview of the field to be covered, and periodically reviewing progress in relation to this ('Now that we've done X, we're going to move on to the next aspect of....'). They can help the student or trainee to map what he is doing, to get some sense of the lie of the land. Thirdly, a course can suggest an order in which to do things, a 'logical' sequence. The term has to be placed in inverted commas, since it must be treated with some care; various sequences are usually possible, and justifiable, on the basis of either the inherent logic of the subject, or the 'psycho-logic' of the student's learning. And fourthly, a course can set limits or boundaries to the learning task. In reality, these are likely to be rather artificial, since one can always learn more, and the domain of human knowledge and skills is not as neatly compartmentalised as concepts like 'subject' and 'discipline' might suggest. However, learning is to some extent the art of the possible, and a structured course can help to make the job more manageable than it might otherwise appear to the independent learner who can perceive no limits to the project on which he has embarked.

The danger sometimes is that the people who plan courses take structure too far, so that it becomes not a help but a hindrance to learning. Rigid goals, sequences and boundaries can inhibit the business of relating the student's existing cognitive structure --- and everyone brings something to learning --- to the external or public structures of organised knowledge. That process is a subtle one, particularly with adults, who often have, for better for worse,

well established ideas about the world and how to operate in it. Sometimes, the complex and fluid structures of subjects become ossified in a syllabus which makes them appear much less debatable than they really are; knowledge tends to become formalised and institutionalised , and this leads to a kind of structuring which has less to do with the nature of the subject or field than with the evolution of institutional and professional structures. However, if the idea of structure is not pushed too far, it can offer the student on the course something that is often lacking in independent study.

There is a more subtle problem with independent study which a well-planned course can overcome. All subjects, like organisations, have a less visible side, which is often elusive and difficult to grasp initially. A discipline or field of study to some extent constitutes not just a body of knowledge and skills, but a kind of sub-culture, a little world which has its own norms, perceptions, habits and even jokes. Often this is revealed not so much by talking about the subject or field, as talking around it; access to it is somehow indirect rather than direct. This points to the need for induction into the field, not only at the beginning of a course, but as a continuing process which accompanies the overt or official curriculum. The independent learner, who has access only to materials rather than people, finds it difficult to sense what is not spelled out in writing, and hence to read between the lines. Course organisers therefore have to take particular care to induct students and trainees into the field of study, to give them an 'in'.

As with structure, this process can go too far, and become not simply an induction but an initiation into a received set of ideas and values. The hidden norms and prejudices associated with subjects and fields can be very strong, and need to be challenged if they are not to become a form of intellectual and professional dogma. Induction of the neophyte should be accompanied by exposure of the expert. Induction, moreover, is not simply into a field of study, but into the process and methods of study. The problems that students initially have on a course are often related to the latter: what should one read first? is one expected to read everything? how should one set about an essay? can one cite one's own experience? what are the examiners looking for? can one criticise the lecturer? and so on. Problems such as these are increasingly addressed in 'return to study' or

'learning to learn' courses, which can form a kind of induction into the process, rather than the content of study. But such courses need to be paralleled by an awareness on the part of teachers and trainers that induction into content and process is a continuing need, and one that is not simply a matter of 'study skills'(16).

An even more basic problem for the independent learner is knowing whether what he is studying is right for him, in several senses. Will it cover the knowledge and skills that he really wants or needs? And how can he be sure what he really needs? Is it pitched at the right level, and not too elementary or too advanced? Can he cope with it? Is he bright enough? Is he taking on too much? Such questions are difficult to answer, even with the help and advice of friends. Not only is it difficult to gauge the nature or level of a line of study; adults are often very uncertain about their own capacities as learners, partly because they may have been away from formalised study for some time, and lack a basis for comparison with other students. (This anxiety tends to decrease after a course begins, as the students begin to get some relative sense of their own abilities, through discussion in a group, course work, or assessment.)

All this suggests that one of the basic functions of a course is selection, not simply in the usual sense of ensuring that the student is right for the course, but also that the course is right for the student. Admission to a course should in some measure be a guarantee of an appropriate match on both sides; that is the responsibility of the course organiser. This admission process will normally need to involve an element of guidance and counselling as well as the usual formal procedures if it is to honour the second half of the implicit contract. Courses in post-school education and training vary greatly in terms of their admissions policies and procedures. A good deal of higher education applies strict admissions requirements, whereas further education tends to be somewhat more flexible, and in adult and continuing education and training, courses may be, at least on paper, open access. (One has to say 'on paper', because there may be an element of self-selection in such cases, which effectively screens out certain groups or types of applicant.) Where access is relatively open, the challenge to the course organiser may be greater, and the 'match' that should be guaranteed by initial selection has to be made and negotiated during the course instead. Some students and trainees

will probably drop out or be 'cooled out' (i.e. discouraged from continuing) during the earlier stages of the course; with the remainder, the teaching-learning process will pose particular problems of adaptation on both sides.

Finally, a course can assess a student or trainee in a way that the independent learner finds difficult to do on his or her own. Assessment, as Rowntree (17) has pointed out, is a feature of everyday life and relationships, not something confined to educational institutions; and feedback, in the form of comments and reactions by others, is part and parcel of informal, experiential learning. However, as with the other course functions described here, there are limits to informal assessment. People may not have the time to do it systematically or carefully for themselves or others; and they may hesitate to criticise too much. Mutual assessment within work relationships or families can be a tricky business. There are real problems for the independent learner in knowing how well he is getting on, or when he has reached an acceptable level, however that is defined. (Imagine if in learning to drive there were no official driving test, and one had to rely on the judgement of ones family, friends, or colleagues instead.)

Formal education and training take assessment as a normal part of their function; indeed they are to some extent obsessed by it, and sometimes give the impression that something is not properly learned until it has been formally assessed. There are very well established procedures and even rituals of assessment. Writers on assessment typically distinguish between formative assessment, which is aimed at improving learning during a course, and summative assessment, which arrives at a final judgement. Both are important in formal education, but while the independent learner can usually obtain some forms of formative assessment, the latter is virtually an educational monopoly. Indeed, it is perhaps the only thing that formal education and training systems do which cannot be done at all by learners outside them. As we have seen, informal learning can provide some of the elements of formal education, such as teaching, materials, and even structure; but one thing that learners cannot do is award themselves certificates. While this may seem a rather instrumental and not always very educational function of the course, it is nevertheless a key one, and a reason why many people choose to enrol

rather than study on their own. Indeed, the formal certificate serves to label and legitimate, in the eyes of society, what the student has learned already informally, through work, experience, and private study.

We have identified seven basic functions or features of a course --- selection, induction, structure, teaching, environment, materials, and assessment --- which together make up a kind of word: SISTEMA. It is sometimes said that a course constitutes or should constitute a system, both in the sense of a planned totality and an interactive whole, and the acronym is perhaps useful in reminding us of this. These are the seven things that the learner should get from a course which he would find more difficult to get or do on his own.

Two final points should be made. First, we have tended to argue as if learners had the choice between independent study and formal enrolment on courses, and this is more typical of various forms of adult and continuing education than of further or higher education. However, the approach outlined here is relevant to the latter as well. All forms of post-school education throw the responsibility for learning back on to the student to some extent, as part of the general aim of developing autonomy and maturity. Thus lecturers in higher education talk about not 'spoon-feeding' undergraduates, and vocational trainers describe how they gradually wean the trainee away from dependence on their supervision. Some of this may be mere rhetoric, and the web of dependence can be a subtle one. But if such ideals of development and autonomy are to be taken seriously, it would seem perfectly appropriate for teachers in both fields, as well as in adult education, to define their role primarily in terms of doing that for the student which he cannot, or cannot yet, do for himself.

Secondly, the functions listed here help to clarify the distinctions between formal, nonformal and informal education introduced by Coombs and Ahmed and refined by others (18). Indeed, they suggest that such distinctions constitute a continuum or spectrum, rather than a set of clearly demarcated categories. There are degrees of formality in the teaching process, and degrees of structuring of learning. Likewise assessment can range from the informal comment or reaction of a friend or colleague to the highly ritualised occasions of public examinations. The learning environment too ranges from the clearly

institutional (the university or college) through facilities which are used for, but not designed or designated for, education, to the manifold settings --- the production line, the office, the kitchen, the car --- where informal learning and teaching may occur. The process of selection too exhibits varying degrees of formalisation, ranging from the highly bureaucratic and explicit admissions procedures of higher education to the much subtler processes of admissions and adherence to an informal learning group.

Some of the criticisms of formal education, particularly in developing countries, have led to attempts to move it along the continuum towards the nonformal. This can be expressed in terms of a kind of reversal of formalisation: de-selecting, de-structuring, de-professionalising, de-institutionalising, etc. Indeed, nonformal education has until now been defined largely in relation to the formal system, and has been regarded variously as an effective or low-status alternative to it. Nonformal alternatives to conventional 16-19 education have also grown up in industrialised countries, particularly in relation to disadvantaged or alienated groups, and similar ambiguities exist there in terms of its role and status. However, it may also be useful to view nonformal education as something which attempts to improve on or enhance the informal, independent learning process; and to view formal systems of education and training as the logical conclusion of such an attempt.

The irony is perhaps that the very attempt to improve on natural, independent or informal learning can create problems of its own, which do not occur with informal learning: the educational equivalent of 'iatrogenic' (i.e. medically-induced) diseases. The very formalising of teaching can diminish the proper involvement of the learner in his or her own learning: the very structuring of the course may inhibit, not facilitate understanding, the selection process screen out rather than in, the assessment process invalidate itself by the very conditions it creates.

The seven functions of courses identified here are not the only possible ones, but they are probably the most common ones. By 'course', we mean here any relatively structured learning event, ranging from a study day, through a series of meetings, classes or workshops, to a formal degree course lasting several years. Such

events may be planned and taught by individuals or by teams, and may or may not lead to a qualification. And as pointed out above, they may range from the very informal to the highly formalised and institutionalised.

Not all functions exist in all courses. Some courses are relatively open or non-selective, and others do not involve any formal assessment. In 'distance' courses, the teaching will be largely limited to materials, and there will be little or no learning environment in the sense described here, except when students meet together for a study day or a summer school. Some forms of education, particularly of the non-vocational or community type, are relatively unstructured. Post-school education is a highly diverse field, and the forms that its courses and programmes take reflect this fact. But the seven general functions outlined above can act as broad headings for thinking about what a course is and does; they provide an initial if abstract framework. In the next section, those abstractions will be made more concrete.

3. THE CONTINGENCIES OF COURSES

In the previous section, we explored the kinds of learning problems which the independent learner faces, and how a planned course can help to alleviate these, and thus enhance the natural learning process. The seven functions identified can be formalised to varying degrees. But how are these functions translated into practice in an actual course or programme?

Each of the seven functions is affected by seven main variables or contingencies: the rationale of the course; the regulations or requirements governing it; the resources available; the nature of the subject; the students; the staff; and the physical and social setting in which the course takes place. The importance of each of these contingencies will vary from course to course, and not all the functions are affected by all the contingencies. However, a brief analysis will show that each function is affected by at least several.

Take, first, the provision of learning materials for the student. One wants to find or prepare the best; but what is the 'best'? Ideally, they will be those materials which best convey the content of the course to those particular students. One might, for example, find a book which gave a good exposition of a particular topic, but which was nevertheless wrong for the students one had in mind --- too difficult, too elementary, going off into things one does not need to cover. Conversely, one might come upon an attractive and accessible book, covering the right things at the right level, but which was not accurate, up-to-date or unbiased in terms of the subject-matter. Sometimes books are suitable in terms of their content, but the style is wrong; that is a problem with using some American texts in this country. Already in the choice of materials, we have identified two variables or contingencies: the subject and the students.

Another factor may be resources; some books are simply too expensive for the student or institution to purchase, however much one might like to use them. Or they may be difficult to obtain, having just gone

out of print. The laws of copyright also affect the use of published materials. Regulations or requirements may prescribe the use of certain texts; and in some countries laws forbid the use of others. The preparation of 'home-grown' materials, such as handouts and notes, depends on staff.

Regulations and resources loom even larger in the case of equipment and facilities. There may be regulations or requirements which state that a certain kind of equipment should be available to students on the course if it is to be validated or accepted by the relevant national or professional body. And the cost of learning materials and equipment is a major factor in science and technology courses, influencing the structure and content of the course in significant ways.

If one turns to the learning environment, a similar range of factors comes into play. The environment may also be affected by regulations, relating to access, opening and closing times, and restrictions on the use of spaces. The importance of resources shows itself clearly in the learning environment: the quality of buildings, the degree of comfort, the facilities for students, and so on. But the environment is not just a physical matter; it refers to the social ethos and 'feel' of a course as well, and that is much more likely to be influenced by the staff and students. The staff play an important role in setting a certain tone or style; they can give the lead in establishing a formal or informal ethos, and in creating the climate for the group. The students too help to determine the nature of the learning environment, and may indeed establish a supportive and positive environment despite poor facilities or remote or unhelpful teachers. Beyond the staff and students, the setting of a course in its institution affects the learning environment; colleges, universities, adult education centres and training workshops all have their own atmosphere, which differs from place to place. A course held in an annex may have a different ethos from one held on the main site of a college. One sometimes finds a 'micro-climate' in part of an institution which is at variance with the general feel of the place (either positively or negatively) and this usually reflects a particular combination of staff and students on a particular course. The micro-climate may reflect the distinctive 'culture' or style of a particular subject, which provides staff and students with an identity which distinguishes them from

their peers in other subjects and fields. The medical faculty or the business studies department may seem like a world unto itself.

A course should not only provide an environment which is conducive to learning; it should offer teaching. How that is carried out will depend on a number of factors, above all the teaching staff. A course may be tightly planned and monitored from above by some official or central body, but in the end it is the teaching staff who teach it, and turn such plans and intentions into practice. Staff typically have a good deal of freedom and discretion in how they teach, partly because teaching is to some extent a private activity and therefore difficult to monitor and control, and partly because teachers and trainers are to some extent regarded as professionals who should be allowed to exercise their own judgement in the performance of their duties. So the competence, attitudes and style of the teaching staff are major contingencies in any course; indeed students' experience of the course may be strongly coloured by the people who teach it. It is not simply that education and training are labour-intensive in the sense of having a high ratio of labour to capital; they are also 'labour-dependent' in that the end result depends heavily on the human factor.

The way a course is taught will also depend on other factors, which may interact with the staff factor. The students may influence the pattern and style of teaching through their own expectations and learning styles. Students who expect to be taught in a didactic way, perhaps because of their previous experience, may force a teacher to adopt such an approach even when he or she would prefer a more participative one. Conversely, some students will react against a didactic style, and force the teacher to modify it and allow more student involvement in how things proceed. The way a course is taught can also reflect the more general norms of the institutional setting, which may encourage or discourage formality or informality, or didactic or participative styles. And the pattern of teaching will in the end reflect the general rationale of the course: the reason why it is being put on. Vocational and professional courses may reflect to some extent the ethos and norms of their occupations, and this is likely to show itself not only in what is taught but how: in the relationship between teacher and student, between colleagues and peers, and the conventions of appearance and behaviour. The same is

likely to be true of a non-vocational course which adults attend out of interest rather than necessity, where a more easy-going, egalitarian and spontaneous style may be appropriate. Teaching styles differ from subject to subject.

The rationale and subject of the course will also affect its structure. It is possible to structure most courses in more than one way, except where the logic of the subject-matter dictates that certain things be covered in a certain order. Subjects and fields differ as regards the tightness or looseness of their inherent structure. Certain skills may have to be taught in a certain sequence; hence there is often a predictable pattern in the structure of technical or language courses, at least in their early stages. Likewise, mathematical, scientific and technological subjects often seem to manifest a 'built-in' logic or sequence, although it is difficult to judge how far this is simply a matter of habit, and how far it reflects a real sequential logic in the subject. By contrast, it is often possible to approach and structure arts and social science courses in a variety of ways, perhaps because they are closer to ordinary language and common experience. It may be sensible and common to adopt a chronological approach to the study of literature, history or economics, but non-chronological, thematic approaches are also possible.

However, it is not only the real or perceived structure of the subject which determines the structure of a course. The fact that the course does or does not lead to a recognised qualification can have a major influence. If it does lead to such a qualification, there are likely to be requirements or at least conventions about what is to be covered and in what order, what is core and what is optional; on the other hand, a non-credit course which does not lead to any formal qualification is free from such constraints, and can lead where the lecturer and students want to go. Structure is also influenced by setting. Terms, weeks and timetables constitute a framework or format into which courses have to fit, and this influences the sequence and structure of the content. A topic will be be rounded off by the end of one term rather than allowed to spill over into the next because that seems a neater way of doing things; the specialisms of lecturers come to be seen as real subdivisions of the field; and breaks between modules, terms or years come to seem natural stages in the overall

progression. Indeed, it is interesting that we tend to regard qualifications such as O and A levels, and bachelor's and master's degrees as natural termini in studying a subject, where in fact they are rather arbitrary cut-off points, dictated more by time than epistemology.

The other functions of the course which were identified in the previous section are also contingent upon a number of factors, depending on the kind of education or training involved. Selection on some courses is a matter of self-selection by potential students or trainees; the course is formally 'open', and it is up to the individual to decide whether to enrol or not. Such decisions may be quite complex, and involve not only considerations of relevance, cost and practicality, but more subtle judgements about whether one could cope with, or feel out of place on, the course. In other cases, it is the staff who have the main say in selection, and who are allowed to exercise their professional judgement as regards the suitability of applicants. But in many cases, there are institutional or national regulations or requirements which determine or underpin the admissions process. There may be exception clauses in such regulations, and staff may be allowed to exercise some discretion in applying them, but in the main the criteria will be laid down, usually in terms of previous qualifications, age, or experience. The onus is on the student to show why he or she should be admitted, rather than on the institution to show why he or she should not be.

Resources may also influence selection, in an indirect way. Where the funding of courses depends on student or trainee fees, staff or institutions may be keen to recruit as many applicants as possible, and this may influence their selection judgements. Indeed, the A level grades that are required for entry to certain subjects or departments in higher education institutions reflect the law of supply and demand, with popular subjects and institutions raising the grade 'price' in response to high demand, and less popular ones lowering it. The pattern varies over time, as the popularity of subjects and institutions changes, and the system faces either an excess or shortfall of applicants.

The rationale of the course also affects selection. What is the course for? Who is it for? As was pointed out in the previous section,

selection is or should be a two-way process, ensuring both the suitability of the student for the course, and the course for the student. One cannot consider either of these aspects of selection without thinking hard about the overall nature and purpose of the course. But such general considerations may also vary from subject to subject. The weight placed on previous qualifications and grades may be greater in some subjects (such as mathematics and science) than in others where relevant experience and motivation may count for more. Ultimately, the weighting of such factors in selection depends on the predictive value of each one, which is likely to vary from subject to subject.

Induction into the course will also depend on a number of factors, but above all on three: the nature of the subject, the nature of the institutional setting, and the role and style of the staff. Subjects have their own subcultures, and the process of induction into that subculture will vary from one subject to another. The student who enrols on a course at an art school, agricultural institute or military establishment will quickly be exposed to the less formal and overt aspects of these subjects and occupations. Where the art school may encourage noncomformity and individuality --- to the point where these things become a kind of conformity --- the agricultural institute may inculcate the roles and values appropriate to a relatively settled rural society, and the military college transmit norms of discipline, cooperation and service. Even among academic subjects in higher education, induction into the culture of, say, the subject of history may be rather different from that into the subject of sociology; for one thing, they will belong to different faculties (arts and social science) which in themselves will have a different ethos.

But equally, one art school varies from another, as does one agricultural or military institute from another; each constitutes a particular, and in some ways, unique setting, with its own rules, norms and ethos. Institutions and departments within them have their own reputations, for being 'traditional', 'progressive', 'strict', or 'free-and-easy' or for adhering to a particular school of thought, for example within economics or sociology. These reputations reflect the traditions and past of the organisation, and sometimes lag behind current reality. The culture of the course into

which the student is inducted will also reflect the staff who are currently in post. They will to some degree set the tone and style of the organisation, and changes in staff can quite rapidly lead to changes in this respect.

The assessment of courses also reflects a range of factors. Perhaps because assessment is the most sensitive of all educational and training tasks, it is often closely regulated. Indeed, in further and higher education the assessment of courses is typically more tightly controlled than either their content or teaching, where a considerable amount of professional discretion may be allowed. In vocational and professional fields, the process of assessment is normally governed by national regulations or requirements. But even where such occupational norms do not apply, assessment is usually closely regulated by the norms and practices of the institutional setting. These are not always spelled out in black and white, but become evident when changes are proposed. At that point, it may become clear that the institution has certain strongly held beliefs about examinations, continuous assessment, project work, or modular credit.

Ideally, such norms should be based on a careful analysis of the other contingencies in the situation: the rationale of the course, the nature of the subject, the nature of the students, and the capacity of the staff to assess them in various ways. Logically, one cannot assess achievement if one does not know what one is looking for, in whom, and how to gather the necessary evidence. The criteria for assessment must derive from, and are even synonomymous with, the aims and objectives of the course. Different subjects have to be assessed in different ways; for example, some subjects can be assessed entirely through written tests, while others require practical or oral examination. Different groups of students may require different methods of assessment; for example, formal unseen examinations may not be appropriate for students or trainees who are not in the habit of sitting them, because such examinations in themselves require certain kinds of 'technique' over and above what one knows about the subject itself. For the trainer, the ability of the trainee to apply what he or she has learned in a realistic job situation may be far more important than any 'artificial' tests or examinations. And the validity and reliability of any method of assessment depend partly on the ability of the staff to use that

method: to set appropriate questions, to moderate marking schemes, to devise and monitor practical tests, to conduct oral examinations and so forth. All these factors point to the need for a detailed and careful analysis of the assessment process on any course. However, because assessment, especially formalised and certificated assessment, is such a sensitive area, it is perhaps less open to cool, rational analysis than it should be, and the influence of institutional norms and traditions on it is correspondingly greater. In practice, the discussion of assessment is intimately linked with concerns about standards, pass and failure rates, and the institution's reputation.

A great deal more could be said about the ways in which the seven functions of courses identified in the previous section are translated into practice. However, the general point should now be clear. Such functions, far from operating in a vaccuum, are modified and coloured by contingencies at every turn in the real world. The answer to the question: what kind of course shall I plan? is: it depends. In particular, it depends on the seven factors which one has to bear in mind constantly, not only at the initial planning stage, but in the subsequent implementation of the course, its evaluation and any further changes.

Three of the factors are very general, and affect the planning of the course in all sorts of ways. First, one must consider the rationale of the course. Why is it being provided? Who is it for? What aims, purposes or intentions does it have? How it is justified? Education and training exist for a purpose, though not always a specific or 'extrinsic' purpose. The nature of that purpose should underpin the decisions that are taken about the selection and admission of students, the structuring of the content, the choice of staff, the methods of teaching and training, and the assessment of the results or outcomes.

This emphasis on the rationale or aims of the course lies at the heart of rational or systems models of course planning (19). Education and training, it is argued, are rational, intentional activities. One must therefore distinguish between their ends and means, and derive the second from an analysis of the first. Systems models typically begin with the analysis of general aims, from which is derived a more detailed specification of objectives, which in turn allow one to

identify the content, methods and experiences which will be required to achieve those objectives. Assessment and evaluation complete the planning cycle, by referring back to the original intentions, and pointing to any changes that are needed.

This rational, systems approach, which is similar to rational models in other fields, such as commercial management and public administration, can be seen as a reaction against the rather ad hoc, pragmatic or incremental processes of course planning which have been the norm until recent decades. It has provided a useful challenge to lazy or sloppy course planning, though it has had rather more impact on, and is arguably more relevant to, the relatively cut-and-dried fields of training than education. However, both the assumptions and the application of the systems approach have come in for a good deal of criticism (20). It is argued that education is not necessarily goal-oriented; that one can set off without a prior knowledge of where one is going to arrive, and indeed that such evolutionary freedom is an essential part of individual learning and development. It is also argued that one cannot neatly distinguish between educational ends and means; that the latter colour the former. It is argued that the systems approach is fine in theory but impossible to use in practice, because people do not operate in such a detached, rational and analytic way (21).

In terms of this paper, the systems approach has two main faults. First, although it prescribes a process for planning courses, it does not actually analyse what a course is, other than describing it in general terms as a structured learning experience. The seven functions listed in the previous section were an attempt to identify what a course is and does, and the process of planning is the process of translating those seven functions into reality. One can see from this that a course might perform some functions well, and others poorly e.g. have a clear structure but poor teaching, good materials but a poor environment, careful selection but unreliable assessment.

Secondly, the systems model is inherently abstract. It implies that objectives and content have an existence independent of people, institutions or environments. It mistakes the script for the play. But knowledge implies a knower, and education and training imply organisation. The systems model offers no guidance on how to handle

the contingencies which affect the intentions of education and training in the real world; it has nothing to say about actors, contexts and interactions. At best, it treats these merely as means to be ordered to achieve the end result, as 'plastic' or 'transparent'; at worst, it leads to a systematic over-emphasis on content at the expense of people and environments, and encourages simplistic attempts to apply or transfer what has worked with some people in some settings to other, quite dissimilar situations, for example in different countries. The model which is being explored here suggests a framework not only for thinking about what a course is and does, but for taking into account the factors or contingencies which affect the translation of such functions into practice.

Two of the most obvious examples of contingencies which the systems model ignores are regulations and resources. The rationale and aims of a course may be affected in many ways by both of these. The systems model implies that the course planner is free, and can start planning from first principles; but this is rarely true. Existing regulations can bear on the selection of students, the structure of content, and the assessment of outcomes, as well as affecting the learning environment in various obvious and subtle ways. The availability of resources has direct and indirect effects on staffing, materials and the quality of the learning environment, not to mention other aspects of the course.

Other more specific contingencies have also been identified briefly in this section. The subject of study (and this refers to the subject-matter of any course, not just what are conventionally labelled subjects or disciplines) affects the structure of the course and the pattern of teaching and assessment. For example, some subjects may require a tighter structure or sequence, with fewer alternative paths or options, than others. Some subjects may require more didactic teaching than others; some (such as typing) can be taught easily to groups, others (such as painting) may need a more individualised approach. Likewise, the assessment of typing and painting will differ because of the differences between the subjects.

The students too are an important contingency, affecting not only the process of selection and induction, but the pattern of teaching and

the learning environment. What is, on paper, the same course may in fact vary a great deal from year to year with different groups of students. Age, sex, background, and the 'personality' of the group can all be factors in such differences. And where the syllabus is not fixed by external regulations, the structure and content of the course may also reflect differences between one student or trainee group and another.

Some systems models recognise the importance of subject and student in the planning process. However, few give due weight to the two remaining contingencies: the staff, and the setting. Lecturers, teachers and trainers have minds and lives of their own; they do not simply 'implement' the intentions of the course planner, as a rational model might suggest; they select, distort, emphasise, extend, develop and modify the original blueprint in all sorts of ways. Indeed, anecdotal evidence suggests that staff, and their attitudes and morale, are often the make or break element in a course. Skilled and committed staff can transform a poorly planned and resourced course, an indifferent intake, and difficult environment into an exciting and rewarding experience for all. Conversely, the best design and facilities and the best motivated students are no defence against indifferent or incompetent staff.

The setting of the course can also affect it in manifold ways, from the influence of bureaucratic minutiae, to the powerful norms and patterns of the institution. Sometimes it is in apparently trivial matters such as timetabling, room bookings or photocopying. The scale and structure of the institution can also have their effect, not least in the boundaries between courses and parts of courses, which mirror institutional, professional and physical boundaries. Staff and students become most aware of setting when they move from one department, institution, organisation or country to another; initially the setting is perceived as a complex of possibilities, constraints, hidden rules and visible structures. After a while, what was noticable becomes normal, and the sense of setting begins to recede again, to become merely the background of one's work. For all that, it remains a powerful contingency in the planning and operation of courses, since education and training involve organisations not just individuals, and are always influenced by their wider social and cultural context.

The seven contingencies of courses ---- rationale, regulations, resources, subject, students, staff and setting --- are presented along with the seven functions of courses in Fig. 1. The model suggests what has to be done on a course, and those things which affect the doing. As with all models of this kind, there are limitations. The various boxes in the diagram are more neatly compartmentalised than they are in real life; and there may be functions and contingencies which are not listed here. It should also be remembered that the locus of control in the planning and running of courses may vary considerably, from validating bodies, through institutions and their staff, to the students themselves. The model simply identifies certain functions that have to be carried out; they are not always carried out by the teacher or trainer.

Each of the seven functions could be explored in much greater detail; for example, there is a great deal to be said about both selection and assessment, and a vast literature on each. However, there is one function of the course which clearly needs to be unpacked further, in order to explore the implications of a contingent approach to education and training. That is the teaching function, which in itself is a collection of more specific functions.

CONTINGENCIES

FUNCTIONS	RATIONALE	REGULATIONS	RESOURCES	SUBJECT	STUDENTS	STAFF	SETTING
SELECTION							
INDUCTION							
STRUCTURE							
TEACHING							
ENVIRONMENT							
MATERIALS							
ASSESSMENT							

Fig 1: A Framework for the Analysis of Courses:
The SISTEMA model

4. THE FUNCTIONS OF TEACHING

This section is called the functions of teaching, not of the teacher. This is because although most of the functions described here are typically carried out by that person whose designated role it is to teach, lecture, tutor, train, instruct or supervise, they can be and are sometimes carried out by other people, including the student or trainee himself. Teaching may be carried out by specially-designed teaching materials, at a distance, as well as by the face-to-face teacher; it can be carried out by people who take on a teaching role informally, for example an older or more experienced colleague or friend; it can be carried out by other students or trainees in the learning peer group; and in some respects one can do it for oneself.

However, it is precisely the limitations of all these situations which create the need for, and justify the role of, the formally designated lecturer, teacher or trainer. As with structured courses, one can identify the essential roles and functions of the teacher by analysing the problems that face the person who tries to learn or study on his own. It was stated at the outset that learning is a natural and normal activity, and that most learning which takes place in adult life does so without any contact with formal education, and often with little informal assistance from others. It is a necessity, characteristic, and consequence of our everyday activities, in the family, at work, through leisure and in the community. However, that is not to say that people do not run into difficulties in their learning, or that they might not learn more or better if they had some help. It is the job of the teacher or trainer to provide that assistance. But just as there are various kinds of learning difficulty, so there are various kinds of assistance; and hence teaching and training are best seen not as a single, undifferentiated activity, but as a collection or set of functions, which come into play as needed. Teaching and training are thus 'umbrella' concepts, which cover a range of activities and interactions. One may teach in some ways and not others; and one may be a good teacher in some ways and not others.

What aspects of learning does the learner find most difficult to accomplish on his or her own? One of the simplest, and yet most intractable difficulties, is to 'see' something for oneself. This is a characteristic problem in learning manipulative skills which have to be visualised or perceived before they can be performed. The manual on guitar playing or car maintenance will describe the skill operation, and may well provide diagrams, and the videos that have become increasingly available in recent years are a great help in seeing what is involved. However, what the student or trainee really needs is someone to demonstrate the skill. Demonstration is not simply a matter of performing; it typically involves cueing the observer as to what to look or listen for, slowing down or breaking down the process so that its various sub-operations can be distinguished, repeating the tricky bits, and responding to questions about the whole process.

It is not surprising therefore that one of the older definitions of teaching is in terms of 'showing', and that we commonly describe understanding in terms of 'seeing'. However, this latter point leads on to a second kind of learning difficulty, and a second function of teaching. The problems of understanding cannot always be resolved by demonstrating or showing; they may require explaining. Again, this can be difficult to do on one's own, and the failure to grasp or understand one particular point in an argument or calculation can hold up progress for hours, even days. What one needs is someone to explain it; but what do we mean by 'explain'? (22). What do teachers and trainers do when someone says 'I don't follow this' or 'I can't understand that'? One common reaction is simply to repeat what was said. Sometimes, however, as with demonstration, the process of explanation involves slowing down or breaking down the process of reasoning, so that each step is clearly identified and the missing or problematic one can be nailed. Or it is a matter of providing concrete examples, parallels or analogies which lie within the student's stock of knowledge and experience. In other cases, it is a more complex process of interpreting the problem in the light of the student's existing cognitive structures, and in so doing, modifying them. Explaining what we mean by 'explanation' is itself difficult, and in some cases the process involves joint interpretation or exploration rather than the kind of differential knowledge implied by 'explanation'; the role of the teacher is not merely to open up things, but to be open to new meanings himself.

Some kinds of learning, however, require not only seeing or understanding, but a kind of knowing which is closer to experiencing or being. Where a learner is trying not simply to acquire certain knowledge and skills, but to become a certain kind of person, he needs an example on which he can model himself. The apprentice may model himself on the master, the student on the professor, the trainee on the manager, the young soloist on the maestro. What is being provided by the 'teacher' here is a point of reference not simply for the acquisition of knowledge or skills, but for a kind of life: outlook, attitudes, behaviour, appearance, style. The function of the teacher is not simply to demonstrate or explain something, but to represent or embody it; to practice what he preaches; to be what he professes; to live what he knows. The process whereby learners identify with what is represented in this way is a complex one, and may contain elements of rejection as well as imitation; but this aspect of teaching and learning is a fundamental one in vocational and professional fields, where the bottom line is a kind of occupation or life. Of course many people other than the formal teacher or trainer may 'represent' the occupation or profession in this way, and indeed students sometimes identify more strongly with past models, who they have come to know through their writings, than with any living exemplars. But even in more academic or abstract fields, the importance of representation in teaching should not be under-estimated. Knowledge and learning are not perhaps as disembodied as we like to think (23).

So far, three main functions of teaching have been identified: demonstration, explanation and representation. The relative emphasis on these will vary from subject to subject and course to course, but there is likely to be an element of each of them in all teaching and training. However, all three assume that the learner knows roughly what he has to learn, and where he is going, and this is not necessarily true. Indeed, one of the major difficulties experienced by the independent learner is that of confusion and disorientation; of not knowing where things lead, how they relate to one another, and what direction to take. This is a particular problem in an unfamiliar or new field of study, where the student or trainee does not possess an adequate cognitive map of the territory, and does not know the 'lie of the land'. It follows therefore that one of the basic functions of the teacher or trainer is to orientate the learner (24).

One way of doing this is to provide end-points which the learner can use as a frame of reference, and towards which he can work: statements of ultimate goals, objectives or outcomes. Even if the student does not fully understand these initially, they provide a sense of direction and something to aim for. There has been a great deal of debate in education and training circles for several decades now about how precise or specific such end-points should be; some writers argue that they should be stated in unambiguous, behavioural terms (what the student will be able to do, to what standard, and under what conditions) while others argue for a more general or open-ended approach. There is no room here to go into the pros and cons of each in detail, but as will be pointed out in the next section, the answer may vary from subject to subject and course to course; it may be contingent on various factors related to the who, what and where of teaching.

Orientation can also be provided by giving the learner not a set of goals to aim for, but a general map or overview of the field. This is orientation in terms of structure rather than purpose, and the underlying metaphor is cognitive rather than teleological. Such an approach has two advantages over an objectives-based one. First, it allows the learner to see what he is not going to cover, as well as what he is; in other words, he can relate what he knows to what he does not know, and this may be useful in placing the course in some kind of broader perspective of the field of study. Secondly, a map implies some freedom about routes and paths. Whereas the objectives approach often prescribes a certain progression in learning, through intermediate or enabling objectives, a mapping approach suggests that in some cases, there may be various ways of arriving at the same goal.

Whatever approach is used, and however orientation is construed, it is important that it be seen as a continuing need and process, not simply something that occurs at the beginning of a course. As one learns, ones understanding of the goals or the map changes; orientation, after all, involves ones subjective perception of position and progress. It is possible for students to feel well orientated at the beginning of a course, but to experience growing confusion as the course proceeds, and their initial cognitive structures are challenged and modified.

The need for orientation is a periodic or recurrent one; and the process may involve negotiation and dialogue as much as direction-giving.

The problem of orientation will not even arise if the learner is not interested in learning, and in this sense, motivation is the most basic learning problem of all. Learning, after all, does not have automatic priority in terms of attention, interest or effort. Our minds and lives are a market-place in which many things compete for time and attention. If learning is to begin to take place, it must be prioritised in the face of competing demands from many other sources --- not simply other activities and pleasures, but fatigue, the need for security, and the maintenance of our own existence and identity. It is more useful to see motivation, therefore, not as something which is present or absent, but as something which is directed at this or that activity. If people are not motivated to learn, it is because they are motivated to do something else; the problem for the learner, and the teacher, is to prioritise learning in the rank order of preferences.

Since post-compulsory education is formally (if not always actually) voluntary, people who come on courses are, by definition, motivated, since they have chosen to do that rather than, say, go out to the pub, watch television, or continue with their other work. However, the situation is not quite as simple as it appears, and motivation is as important a function of teaching in the post-school field as in the compulsory sector. The great majority of adults do not voluntarily engage in education and training after the requirements to do so cease; and for some who do, their presence is the result of pressure of various kinds rather than positive motivation. Better information and guidance for potential adult students might increase the numbers of those who return to some form of education and training, and there are interesting recent developments in this respect (25). However, the central problem for the teacher or trainer in the post-compulsory sector is how to sustain and transform the motivation of those who do enrol. Students may begin a course with a high level of commitment, but gradually become de-motivated and disillusioned as time goes on. Why? Is the course not what they expected? Are they finding it too difficult? Is the teaching putting them off? Is the fear of examinations growing? Are there problems of time, money or

travel? Competing job or family commitments?

It is problems such as these which identify motivation as a basic function of the teacher or trainer. What he can do about them is another matter, and depends on the situation, but two general points can be made. First, it is important to know what motivates the students. Is it the subject itself? Is it the hope of getting a qualification? Is it the wish to prove themselves, to show to themselves or others that they had it in them after all? Is it the company they have on the course? Conversely, any causes of de-motivation need to be identified and if possible removed. The problems may lie with the staff, the content, the institution or even the other students. Practical problems, such as getting hold of books and materials, or coping with timetabling, can loom surprisingly and frustratingly large.

The problems of motivation in the post-compulsory field are not quite the same as they are in the schools. In the latter, education is virtually compulsory, and the purpose or pay-off of it often seems remote or obscure. Many children don't see much point in what they are taught. The difficulty that the adult learner faces is not so much in generating the motivation to learn, but in sustaining it, in keeping going rather than giving up, in working through the troughs, in not being diverted or side-tracked. Part-time study, which is the typical adult mode of enrolment, can be a long haul. Not only this; the very nature of the motivation to learn may change as one learns: necessity may give way to interest, or <u>vice versa</u>. One is not quite the same person as the one who started the course the year before. Just as there is a certain natural ability to learn, so there is a certain natural motivation to do so; the function of the teacher or trainer in the post-compulsory field is to harness and sustain that natural energy, and see that it is not destroyed.

Learning may be a natural and often rewarding activity, but it can also be a risky and threatening one. True, some forms of learning do not carry much threat; they may merely involve acquiring or adding on some knowledge or skills that one did not possess before. However, most learning involves grappling with difficulty, exposing oneself to uncertainty, admitting incompetence or incompleteness, and often unlearning something one knows or does already. Learning, by

definition, means change, and change is not always easy or welcome. We construct our lives and selves with difficulty. Moreover, all this learning takes place in the public arena of a class or group or workshop, where inadequacy or failure can be painfully obvious. And some courses carry the additional public ritual of assessment and examinations.

It is little wonder, therefore, that various writers have identified support as a basic function of teaching and training. Behaviourist theorists have tended to emphasise the provision of specific rewards and reinforcement in relation to specific learning tasks, an approach which reached its logical conclusion in 'programmed learning' (26). A much more generalised gloss on the term has been given by writers such as Rogers and Maslow, who have been concerned with the importance of a positive self-concept to learning (27). There is ultimately no conflict between the two schools in this respect at a practical level: the teacher must give both specific rewards and generalised support. The first may seem a rather trivial and even childish point, until one remembers that some teachers and trainers unconsciously get into the habit of only intervening when something is wrong. (An analysis of comments on essays or oral presentations is interesting in this respect.) Before long, the communication and relationship between teacher and student becomes an entirely negative one, even though this is not intended. We all need to know what we are doing right, as well as what we are doing wrong.

Beyond this, there is a need for generalised support in the face of the risks and threats of learning; of reassurance that one is getting somewhere, and that failures are problem-specific rather than general and total. This support is not simply to make learning more pleasant, it is to make it possible, because once the threat or pain to the self reach a certain level, certain instinctive protective reactions come into play: rigidity, aggression or escape. All of these preclude focussed learning. The function of teaching is to provide the support which makes the risks and threats of learning manageable and acceptable, and allows the learner to remain open to and engaged in the process. Of course, this does not mean avoiding criticism, but the scope, timing, strength and form of such criticism have to be carefully gauged.

Criticism implies evaluation, though evaluation is not only a matter of criticism. Evaluation lies at the heart of education and training. Whereas the psychologist will define learning simply in terms of change, the educator will add an evaluative, qualititative dimension; it has to be change for the better, in terms of improvement, progress or development according to some criterion. Although the adult learner may have acquired a good deal of self-awareness, self-evaluation is not easy. It is often difficult to stand outside oneself, and gauge ones performance or progress. Perhaps it is for this reason that the independent learner habitually turns to knowledgeable others for some feedback: What do you think of that? I'm getting on quite well, aren't I? I'm not sure about this piece; and so on. For this reason too, evaluation is an obvious function of teaching.

Such evaluation takes both small and large forms. Every comment that the teacher or trainer makes on a piece of work, or something the student says or does while he is working, is a form of evaluation. Students can get a good deal of feedback from other students as well; indeed the forum of group discussion or practical work provides a continuing source of evaluation for all involved. A mark or grade for course work is a more obvious, though not necessarily useful, kind of evaluation. Formal assessment and examinations represent the macro, formal end of the evaluation spectrum. The element of evaluation in education and training is well-recognised, and the subject of a very substantial literature. Only one general point will be made here. Formal systems of education and training not only teach, they select. They sort, select and label students in ways which have occupational and social consequences; indeed one could, without distorting the truth too much, label the whole process a differentiation system rather than an educational system; the emphasis that one places on one or other aspect depends partly on how one views the relationship between education and society.

The point here is that evaluation, in the context of formal education and training, is often seen primarily in its selective, differentiating socio-economic role, rather than its cybernetic, informative, educational one. The functions of education are not quite the same as the functions of teaching. Teaching necessitates feedback and evaluation; in addition, education usually though not always

requires formal assessment and certification. In identifying evaluation as a basic function of teaching, one is not making any statement about the role of formal assessment, and the ways it operates in a modern education system and society. The distinction is not purely a theoretical one, because the purpose of evaluation, and the use to which it is put, affects the process. It is significant, for example, that there are many more books about how to mark students' work than how to comment on it.

Two more functions of teaching remain to be identified. Both reflect not so much the problems of the independent learner, as the problems that arise from the very attempt to meet those problems. The very act of teaching and training itself creates learning difficulties. The first function is perhaps the most common one in all teaching and training; it is the direct transmission of knowledge and skills. Teachers and trainers spend a great deal of time talking, and much of that time is devoted to presenting and purveying information in a direct way to the students. In some cases, this information cannot be had elsewhere, or in any other way. In higher education, for example, the lecture may present the results of research, or the interpretation of a text, which have not yet been published, and which represent the recent fruits of the lecturer's own labours. In some training situations, the information is so specific to the problem or context that only the people in that position know it and can transmit it. Some of it may be semi-confidential, or so 'soft' that it would be inappropriate to put it in more permanent form. Even when the information that is being transmitted is available elsewhere, the lecturer may feel that the students will learn it better through the process of live presentation and transmission than they would from a book or a video; besides, lecturers can use the live format to interpret and comment on what is being transmitted.

However, students can often obtain the necessary information from other sources, and this raises the question whether teachers and trainers would not do better to spend less time transmitting information, and more carrying out the other functions of teaching which learners find it difficult to do for themselves: orientation, explanation, evaluation, and so on. In reality, it is difficult to compartmentalise these functions of teaching: a lecturer may shift from orientating his audience, to transmitting, explaining and then

demonstrating, all in the space of twenty minutes. Nevertheless, the emphasis on transmission at the expense of the other functions of teaching and training is difficult to explain except in terms of the history and development of an education profession which inherits from centuries of scarcity a monopoly of information, and which continues to derive authority from the possession and release of it. It is also worth remembering that talking uninterruptedly is a reasonably simple and effective way of controlling a class or group, and of appearing to oneself and to others to be doing something substantial and worthwhile. In other words, the emphasis on the transmission function in teaching may derive less from the needs of the learner, than from the needs of the teacher.

The final function of teaching and training to be identified here is to provide opportunities for <u>active</u> learning. One of the few things on which educational psychologists agree is that learning is and must be an active process, although the different schools of learning theory interpret this notion in different ways. The behaviourists place the emphasis on the active response to stimuli, for example to information or questions, and stress the importance of practice. Cognitive theory sees active learning more in terms of the positive construction and re-construction of cognitive maps, strategies and meanings. Humanistic psychology sees activity as a natural expression of human development. More recently, some writers have associated the notion of active engagement with what they call 'deep learning' as against 'surface learning' (28).

For the independent learner, however, activity or rather passivity is not usually a problem. The self-taught student or trainee is by definition actively engaged in the learning process; she makes all the running herself; she sets her own goals, devises her own structures, locates her own materials, works on them by herself, tests herself if possible, and so on. Activity only becomes a problem when learning becomes education, and the responsibility for organising, carrying out and monitoring the process passes over to the teacher or institution. In those circumstances, it is easy for the student to lapse, or be cast, in a more passive, dependent role, and in the end merely to go through the motions of 'surface learning'. Passivity in learning is thus a negative by-product of the professionalisation and

institutionalisation of teaching and training; and finally it affects not only how people learn, but their very concept of themselves as learners. They can come to believe that they will not learn unless they are being taught, or unless they are enrolled on a 'proper' course. Thus learning becomes identified with education and training, and formal education and training at that, ignoring the potential of nonformal modes of education, or the significance of the 'company culture' in training and development.

One of the basic functions of teaching is therefore to ensure that learning is, and remains, an active business, that students do rather than simply absorb. This does not necessarily mean that the activity most be overt; the busy, noisy group is not necessarily more active than the quiet one. But it does mean that a substantial proportion of teaching-learning time should be devoted to activities which involve the learner in doing something with the content: selecting it, applying it, questioning it, re-constructing it, practising it, using it. And teachers and trainers need to be on the look-out for habits and situations which 'de-activate' the naturally active learner.

Nine functions of teaching in all have been identified in this section: motivation, orientation, demonstration, explanation, representation, activation, transmission, evaluation and support: MODERATES. (The word is simply an acronym; it has no particular significance, although one could argue that the general role of the teacher or trainer is to moderate or monitor the learning process.) These are perhaps the things which learners find most difficult to do for themselves, and hence those with which the teacher or trainer can most usefully help the learners. As was pointed out earlier, it is not always easy to distinguish one from another, and in some cases a teacher might be carrying out several functions at the same time. But the headings provide a simple framework for analysing what teachers and trainers do with their time, and what they should be doing. It may be useful, in addition, to ask teachers and trainers which functions they consider most important, which they find most difficult and why. Such questions may elicit other functions not listed here, which can then be discussed. For example, there is no mention of 'paper-work', 'maintaining discipline' or 'establishing rapport', because these are arguably pre-conditions or adjuncts of teaching and training, rather than direct functions.

Most of the above headings are familiar from the literature on teaching, although their bringing together and interpretation in this form may be less so, and reflect the initial point of departure for this analysis: why people do not learn, rather than why they do. However, as with the functions of courses, the ways in which these functions of teaching are translated into practice will depend on a range of factors or contingencies. There is no point in teachers or trainers trying to carry out these functions unless they do so in a sensitive, analytic and flexible way, in the light of the contingencies of the situation in which they find themselves. Those contingencies will be explored in the next section, under the three broad headings of the 'who', 'what', and 'where' of teaching and training.

5. THE CONTINGENCIES OF TEACHING

How one teaches depends on the what, who and where of teaching. Each of these three aspects of the teaching situation can in turn be sub-divided into three contingencies, making nine in all. With the nine functions of teaching identified in the previous section (MODERATES), this creates a 9 x 9 model for the analysis of teaching and training (see Fig.2).

The 'what' of teaching involves analysing the aims, content, and level of teaching: what the general goals of the course are, the nature of the content or subject-matter, and the level at which it is being taught and learned. To some extent the aims of a course are inherent in its content and level. Indeed it is more useful to see objectives as complete statements of content (specifying not only what is to be learned or known, but also what one means by 'learn' or 'know' in each case) rather than as something preceding and distinct from the selection of content, as some systems models imply. However, most courses have generic aims or goals which underlie and unify the more specific objectives of teaching and training, and it is important to analyse these and their potential implications for teaching. For example, general aims such as 'developing an understanding of scientific methods', 'inculcating a holistic view of the patient', 'developing autonomy' or 'teaching care of tools' might not appear as specific objectives anywhere in a course, but they would have important implications for teaching and training. No doubt some aims are more a matter of rhetoric than reality, and are there to impress officials and colleagues rather than inform students. However, even in such cases, it is interesting to test out such rhetoric, to see what if anything it means for teaching, the relationship between teacher and student, and the general ethos of the course.

The content of a course may also affect the way it is taught. As has already been pointed out, subjects and fields differ from one another in a variety of ways, and these differences can affect they way they are taught. To what extent is the subject, field or topic a

CONTINGENCIES

FUNCTIONS	AIMS	CONTENT	LEVEL	SELF	STUDENT	GROUP	PHYSICAL CONTEXT	INSTITUTIONAL CONTEXT	SOCIAL CONTEXT
MOTIVATION									
ORIENTATION									
DEMONSTRATION									
EXPLANATION									
REPRESENTATION									
ACTIVATION									
TRANSMISSION									
EVALUATION									
SUPPORT									

Fig 2: A Framework for the Analysis of Teaching and Training

convergent one, involving right answers, or a divergent one, in which various interpretations are always possible? To what extent does it demand a strict sequence of progression (i.e. one cannot understand C until one has mastered B, which in turn depends on grasping A)? Or are there various ways of entering and moving through it? How valid or useful are students' experiences and opinions in the study of the subject? How far is it 'objective' or 'subjective'? Does it involve both theory and practice, and if so, what is the relationship between them? In what ways is the subject difficult? Is it the theory, the terminology, the quantitative element, the problems of application? All these questions, and others, have implications for the approach to teaching and training. We tend to assume that different subjects will be taught in different ways, and indeed subjects to some extent acquire stereotypes in this respect; we are not surprised if engineering is a bit down-to-earth, the natural sciences a bit dry, the arts rather disorganised, the social sciences a bit radical, nursing very hierarchical. The problem is to analyse such differences and stereotypes rather more systematically than we usually do.

The level of a course also affects the way it is taught. Level is a familiar concept in education and training, and is embodied in the names of, and relationships between qualifications (29). It is recognised that degree level is 'higher' or more advanced than A level, which in turn is above the level of the GCSE. Likewise, admission to courses at one level is typically specified in terms of courses at other levels; one cannot do a City and Guilds Part 2 until one has finished the relevant Part 1; and so on. For all its familiarity, level is a complex notion, and not easy to analyse. To some extent it is a matter of how much one knows, and higher level courses contain or cover more than lower level ones, or do so in more depth or detail. However, level is also a matter of how one knows, and what one means by 'knowing', 'covering' or 'learning'. Here the hierarchies of knowledge and learning produced by Bloom (30) and Gagne (31) are useful in classifying courses in terms of their cognitive and affective simplicity or complexity. The problem in classifying the third of Bloom's domains, that of manipulative skills, is that skills can become more complex or difficult in several ways, rather than just one: in terms of the degree of precision, the number of and relationship between their components, and the speed with which they

are performed. The most difficult skills of all are those which demand speed and precision in inherently complex operations e.g. driving a strange car in fast traffic in a strange city.

For all the difficulties of analysing level in education and training, it is important to attempt to do so, because higher-level courses are unlikely to be taught in quite the same way as lower-level ones in the same subject. The higher-level courses may be more abstract and theoretical, may leave more things open to interpretation, and require both greater accuracy and greater autonomy on the part of the student. Their general aims may also differ, for example, in laying more emphasis on developing critical thought, problem-solving capacities, and tolerance of uncertainty. Each of these factors, and others, will have implications for the approach to teaching.

Teaching and training, however, are not only a matter of 'what' but 'who'. This obviously involves some analysis of the students or trainees as individuals. Why are they there? What motivates them? What ability and experience do they bring to the course? What characteristics do they have, in terms of age, sex, cultural background and social class? Such general analysis has to go further, and take account of individual differences, if the teaching is to be fine-tuned to individual needs. Is there a range of ability in the group? Do the level and type of motivation differ? Are appearance and personal style significant; do they indicate anything? Are there obvious differences in personality? In the level of confidence? In the degree of dependence/autonomy? In the degree of affiliation/isolation? The literature on teaching and training often stresses the need to treat students as individuals, and respond to their particular characteristics. However, the pressures of time and numbers often mean that the teacher or trainer cannot individualise her approach as much as she might want to, and can only take account of students' individuality if it diverges sharply from the norm and thereby creates a problem, for example where a student is markedly brighter or weaker than the others, or exceptionally lazy, or very lacking in confidence. Thus 'normal' teaching can operate with a considerable range of abilities, motivations, personalities and cognitive styles, as long as these do not represent extreme cases. Teachers and trainers often 'teach to the middle' and deal with variations from the norm in tutorials and other one-to-one situations.

It should also be remembered that the onus to individualise is not entirely on the teacher. Students, as adults, themselves have a certain responsibility to take account of their own particular characteristics, and modify their behaviour accordingly.

The student group is, however, more than the sum of its parts. Over a period of time, such a group can develop a life and dynamic of its own, which derives from the characteristics of its constituent members, but is not entirely predictable from them. Teachers commonly talk about good groups and bad groups, lively groups and lethargic groups, cohesive groups and cliquey groups, happy groups and groups full of tension and conflict. The ways in which the group develops is partly due to the teacher, and the experience of the course; in that sense, the teacher is part of the group too. So it becomes very important to analyse the nature and dynamics of the group, and explore their implications for teaching. In some cases, the teacher will have to make a conscious effort to weld the group together; in other cases, he may feel that it has become too introverted and exclusive. It may or may not matter if there are distinct sub-groups within the group. Some groups will need a lot of prodding, others will take off on their own. Conflict within the group may be regarded as a problem, or as a necessary phase in its development.

The analysis of group interaction and behaviour is a complex matter, and some teachers and trainers become very interested in it in its own right (32). For most teachers, however, the need is to understand group processes enough to know how they are affecting learning, and to know how to stop things going awry (however that is defined) or repairing them when they do. This implies some capacity to analyse group communications, roles and phases/stages, and a repertoire of strategies and tactics to meet the occasion. For example, the teacher needs to be able to prevent one person hogging the conversation, and needs to know how to draw out the more silent or shy members. He should be able to combine work in sub-groups with work in the total group in effective and interesting ways. He should register what is not being said (explicitly) as well as what is. Just as most work is carried out in organisations and groups, so is most learning, and the analysis and awareness of the student or trainee as an individual must be complemented by some sensitivity to the life of the group of which he is a member.

As was indicated above, the teacher is part of the process, and no consideration of the 'who' of teaching would be complete without some analysis of oneself. This is a delicate matter. It is one thing to analyse the objective nature of the subject one teaches, or the dynamics of the group one has, and how these affect one's teaching. But self-analysis is not easy, and can be painful. However, it must be done, because as was pointed out earlier, the teacher or trainer is often the make-or-break element in the whole process.

No one likes analysing or evaluating his or her own performance, but there is perhaps an added reluctance in the case of teachers and trainers which springs from the nature of their work. There is of course an element of technical skill in teaching and training, which can be analysed and acquired in an objective and relatively detached way, like any other skill. However, teaching and training are more than skills; they involve the whole self, the person, and indeed many would argue that they cannot be carried out effectively if one is not personally involved in and committed to them. Failures and inadequacies are therefore in some measure seen as personal failures, criticisms are taken to heart, as a comment not simply on the performance of certain skills or functions, but as a judgement on the kind of person one is. And yet one cannot argue that the teacher should analyse every aspect of his situation except himself. Something can perhaps be learned here by comparing teaching with the arts, which also involve public performance of various kinds. The actor, musician, dancer or novelist is also deeply involved in what he or she does, and invests a great deal of his self-concept and ego in it. In the arts, however, this personal investment exists side-by-side with the habit of criticism, in newspaper reviews, audience reactions, and the often candid comments of colleagues. Why should not teaching be like this? It is sometimes said that teaching is a mixture of art and science, but the problem is perhaps that it is not taken seriously as either. If it were really regarded as an art, the procedures of public appraisal and criticism would be more stringent than they are; and if it were truly a science, it would have developed more coherent theories.

There are various ways of approaching the analysis of the self as a contingency of teaching. One is essentially biographical; to ask

people to reflect on why they have come to teach as they do, on who influenced them positively or negatively in the past (their own role models), and on how their approach and style have changed over the years. Another approach is to use the peer group, and ask teachers to comment on their own and each other's work. That requires a good deal of trust and tolerance, and such conditions do not usually exist, except among small groups who happen to work closely together. A third approach is to try to develop an objective checklist of what can be regarded as 'good practice', and appraise teachers in relation to it. Perhaps it is worth remembering in all cases that teaching is a complex activity, and the attribution of success or failure should not always lead back to the teacher. Failure may sometimes stem from the format of the course or the institutional context.

The reference to institutions leads on naturally to the third main dimension of teaching: the 'where'. At its most concrete, this means the physical context or setting: the rooms, facilities, buildings and location of teaching or training. The physical setting has direct, practical implications for teaching. One cannot easily have a group discussion in a tiered lecture theatre; the availability or not of overhead projectors, videos or photocopiers affects the methods and materials of teaching. Likewise, the nature of the buildings and the site both open up possibilities and create limitations. However, the physical setting can also often carry social and educational messages. A dais or podium says something about authority; an annex something about priorities; a door something about privacy. The disposition of rooms and sites affects communications and interaction; corridors seem more accessible than stairs or lifts; the geographical distance between sites is often paralleled by a social distance ('that lot over there...'). And in post-school education, unlike the compulsory sector, teaching and training may well take place in 'non-educational' settings: factories, offices, wards, barns, cars, even out-of-doors. The teacher or trainer must therefore be aware of the physical context of her work, and adapt to it as necessary.

But the 'where' of teaching also implies the institutional setting; the nature, structure and climate of the organisation one works in. The references to regulations and resources in a previous section have already made the point that the institutional context affects the planning of courses in many ways; but it can also affect the finer

detail of teaching. One department may be quite unlike another, in terms of its structure, norms, administration and ethos; and departments change over time, with changes in staff and in objective circumstances such as funding and regulations. There may be certain norms in the institution or department about attitudes to students, to examinations, to spelling, to appearance, to punctuality, to authority, to formality and informality, to examinations, and relationships with the outside world. In some cases staff live very much within a small sub-unit of a department; in other cases they may identify more with the institution as a whole. Their perspective may be 'local' or 'cosmopolitan'; their loyalties may lie with their subject, and its 'invisible college' of colleagues spread across a range of institutions and countries, rather than in the institution which employs them. The institution may grant a good deal of discretion and professional freedom to its members, or attempt to monitor their teaching closely. The balance of tradition and innovation may vary. All these factors can affect teaching in the end, although the impact of some of them is likely to be long-term and indirect.

Finally, there is the wider social setting beyond the institution. Educational and training institutions vary in the degree of their isolation from or proximity to the outside world; universities, for example, seem to be more self-contained or insulated from society than further education colleges. This may reflect the fact that most FE colleges are in the middle of cities and towns, whereas some universities are on green-field or well-defined sites; but it also reflects the traditions and role of the institutions. A lot depends on how accessible the institution is, both actually and symbolically. But however isolated the institution, it is bound to be affected by its social and economic context, and this in turn can impinge on the teaching process. It will affect the kinds of students who enrol, and their relationship with staff and the institution. Do they feel in awe of the place, or at home there? Do they feel it belongs to them or not? Did their parents or elders go there?

Training agencies, especially, may be directly affected by government or company policies, leading to major changes in the organisation and content of programmes. They have to respond quickly to changes in the labour market and the nature of work. An isolated training

agency is a contradiction in terms, since training derives its objectives from its context. The importance of the social context is perhaps clearest when a teacher or trainer moves from one country, or part of a country, to another. Then things which were taken for granted as 'normal' are suddenly illuminated as contingent upon a particular kind of culture, society or economy, and the full contextuality of education and training becomes clear.

Much more could be said about each of the nine contingencies related to the what (aims, content, level), who (students, groups, self) and where (physical, institutional and social contexts) of teaching and training. However, it should already be clear that the functions listed in the previous section have to be interpreted in the light of them. This approach sheds new light on some familiar concepts in teaching and training, and shows how contingent they are upon the situation the practitioner finds herself in.

Motivation is often thought of as something which relates to the individual student, and indeed is sometimes regarded as a characteristic that the individual has or has not to a varying degree e.g. 'well-motivated', 'poorly-motivated'. However, the model that has been developed here points to a more contingent and contextual view. To what extent is the motivation of the student a function of the subject he is studying? of the teaching he gets? of the group he is in? of the institution he is studying in? of the qualifications he is studying for? If one changed any one of these factors, how far would it affect the student's motivation? Is the student motivated by some aspects of the course (e.g. the subject, the group) but turned off by others (e.g. the teaching, the institution)? And how far does the motivation of the group as a whole, which may change over a period of time, influence the motivation of a particular member? Is he swayed by it, or largely unaffected by it? Is it a 'tight' group or a loose group in this respect? Is the individual largely 'inner-directed' or 'other-directed'?

Orientation is often construed in terms of the subject of study: providing the student with an overall map or sense of direction in a particular field, in terms of the centre and boundaries of the field, and the relationship between one part and another, or one stage and the next. However, students may be disoriented not only by a change

of subject, but a change of level within a subject, e.g. from A level to degree level, which necessitates an often subtle shift in approach to the subject, for example from the descriptive to the analytic, or the operational to the conceptual. The lack of such orientation may be a factor in the failure of some students at higher levels when they have done relatively well at lower ones. But one may be disorientated also by changes in the way one is taught, or the environment one is studying in. At the simplest level, students or trainees may find it difficult to locate the right room; something which lecturers may dismiss as a minor problem, but which in a way may be symbolic of a more general disorientation to come. Each institution and course has its own rules of the game which are often tacit rather than explicit. (The concept of the 'hidden curriculum' used by Snyder and others is relevant here (33).) The problems that students and trainees have may stem less from the content itself than from not knowing what is expected, how to set about the work, and what the conventions are. For example, there may be conventions about how long one talks in a group, and who interrupts whom and when. There may be ground rules about writing and presenting essays or projects. There may be hidden assumptions about the relationship between trainer and trainee, and who is responsible for what. And it is also interesting to ask who does the orientating; is it the teacher, as one might expect, or is it the student group (or previous students, on the grapevine)? Even ancillary staff, such as technicians and secretaries, sometimes play a role.

The three common functions of face-to-face or at least direct teaching --- demonstration, explanation and representation --- also hinge on various factors. Demonstration is largely a function of the subject, and what one is demonstrating, whether it is the operation of a lathe, the dissection of a frog, or a tennis shot. However, it also depends partly on who one is demonstrating to (e.g. size of group, novices or experienced trainees) and the physical environment one is working in (availability of video, size of room, light, etc.). The way one explains something depends on what one is explaining (one would not explain a mathematical proof, an historical event and a painting in quite the same ways) and to whom one is explaining it (what do they know already? which examples or parallels will make sense to them? why don't they understand?) It may also be that individual teachers and trainers tend to use particular explanatory strategies when asked

to explain something ('Well, let me draw an analogy...'). What counts as an explanation at one level of study may not be sufficient at another level: the degree student will require a different kind of explanation from the primary pupil. What counts as explanation may even vary from one culture to another, as concepts of causality and relation vary.

Representation also depends not only on what is being represented (the subject or occupation) but on who one is representing it to, and in what context. The hospital consultant 'represents' medicine in a particular way to his students; the fact that he appears, does his round, and disappears again, often with a certain dramatic sweep is all part of the situation. The office supervisor who is there all day every day represents his occupation in a different way to his trainees; there may be less mystery and more continuity. The middle manager may be able to switch off and leave his representative role behind him when he goes off duty, but the social work team leader or the company commander is much less likely to be able to do so. The nature of representation and the forms that it takes may also be affected by the wider social context. (In the middle eastern university where I taught there was a plaque on the staff room wall which said 'If a learned man will teach me, I will kiss his feet'. One is unlikely to find anything similar in a staff room in this country, and the staff-student relationship likewise differs.) The very nature of representation involves notions of authority and legitimacy which will vary from one context to another, and indeed one of the most interesting situations arises where someone who should be acting as a representative or role model no longer does so because his authority and legitimacy have for some reason disappeared.

The other functions of teaching identified earlier also depend on the who, what and where. The activation of the learner will mean different things in different subjects; the arts student may be as active in the library as the scientist in the laboratory or the social worker on a placement. Some students or trainees may strike one as more passive than others. The institutional context may encourage activity and involvement or passivity and dependence; it depends what 'messages' the students get, from the staff, the physical set-up, and the administrative style. A stuffy room, a particular tone of voice, the phrasing of a circular can all influence the perception of the

learning process, and the student's role (or lack of it) in it. Likewise, the way information is transmitted will depend partly on the nature of the subject, the methods used by the teacher/trainer, the resources and facilities available, and the institutional perception of the nature of teaching and learning. For example, the Robbins report on higher education (34) spoke of the 'transmission of a common culture' as one of the general aims of higher education; transmission, rather than 'interpretation' or 'transformation'. In some subjects, the emphasis on the transmission of a body of knowledge may be greater than in others; many professional and vocational fields seem to be relatively conservative in this respect, and characteristically require the 'spring-cleaning' of a major report or review every so often (medicine, engineering and law are examples, but the point also applies to technical and vocational fields such as metalwork, electrical trades, agriculture, construction and catering). Transmission in this light may be connected with socialisation into the field, and the representative authority of those who teach it; the 'passing-on' or 'passing-down' of knowledge and skills as a cultural and occupational inheritance. By contrast, subjects which are more directly affected by research may run the opposite risk of dismissing the past too easily, and falling prey to transient fashions or orthodoxies.

The evaluation of learning is clearly a function of what is taught, to what level, and with what aims. Outcomes have to be assessed in relation to intentions, although it is important to pick up the unplanned, unintended side-effects or consequences of teaching as well in any evaluation. However, evaluation is obviously a function of the institutional context as well, and the extent to which courses are viewed in relation to the assessment and certification of students, the appraisal of staff, or the monitoring and accreditation of institutions. And the way in which evaluation is carried out, particularly in terms of informal, everyday feedback , obviously has to take account of the student as an individual, and the group as a group. Teachers and trainers typically calibrate their praise and criticism in terms of the level of confidence of the student, how new they are to the situation, and any other factors which seem relevant. Again, there may be a broader social variable; the nature and expression of praise and criticism can vary from one culture or sub-culture to another. For example, Americans are often more direct

than English people in their comments; and within each country, the businessman is likely to be more forthright, though not necessarily less venemous, than the academic.

Like evaluation, support has to be 'fine-tuned' in terms of the individual student or trainee, not only in terms of differences between individuals, but from one stage to another in an individual's development. In some cases, students or trainees will need a good deal of support at the beginning of a course, but will have to be 'weaned away' from this gradually if they are to develop the requisite autonomy. At some point, the tutor may have to pass the buck back. The amount of support will also reflect the aims and context of the course. In higher education, too much 'spoon-feeding' is frowned upon presumably because students are being taught to think and act for themselves. In further education and training, too much support might ill-prepare the trainee for the tougher world of 'real work'. By contrast, there is something of a tradition in non-vocational adult education of personal support for the student, reflecting the fact that many adults experience initial difficulties in returning to study, particularly if they do not have a strong educational background, and need all the help they can get. There may also be broader differences between systems and cultures in this respect. One has the impression that in France higher education students are largely left to sink or swim according to their own abilities and motivation, whereas in the U.K. there is a much more extensive system of student support, through personal tutoring and counselling services. And in the U.K. that system is more extensive and effective for undergraduates than for postgraduates.

The above comments imply that support has to come from the system, institution or teacher/trainer, but in fact some of the most effective support for the learner may come from his or her peers. The group that develops solidarity in the face of subject difficulty and teaching adversity can provide the mainstay for the less confident or weaker student. Sometimes it is one or two friends rather than the whole group; indeed, some adults will only enrol on a course if they can come with a friend initially. Perhaps we could do more to help students help one another; some teachers and trainers make a conscious effort to build up group cohesion and support, and the Open University, aware perhaps of the isolation of its students, also lays

stress on this. However, much post-school education also embodies the ethos of individual competition, which reflects the mainly norm referenced basis of most public examinations i.e. students are marked against one another. This competitive element in the system perhaps makes co-operation and mutual support among students and trainees more difficult to establish, especially where formal assessment is in view.

The nine functions of teaching have therefore to be interpreted in the light of the nine contingencies discussed briefly here. This may seem a rather complex task, but in reality it is less so. Not every function involves every contingency; and not every function and contingency has to be borne in mind at the same time; the problems of teaching and training to some extent occur serially rather than all at once. And teachers and trainers --- like all professionals who work in 'expert domains' --- have the capacity to process very complex decisions very rapidly; a point which will be explored further in the next and last section, along with the implications of these models for learning to learn, the training of teachers and trainers, and research into both.

6. THE IMPLICATIONS OF THE MODELS

This paper has analysed teaching and training in terms of certain basic functions and the typical contingencies which affect those functions in practice. The seven functions of the course (or any structured learning event) have to be carried out in the light of seven contingencies; and the nine functions of teaching and training are affected by nine contingencies. So far, so symmetrical, but what does it all mean in concrete terms? What are the implications of all this for teachers, trainers and learners? This final section will explore briefly the implications of the contingent approach first for student learning, then for the training of teachers and trainers, and finally for research in these fields.

Learning to Learn

The idea that students can not only learn, but learn to learn, is probably as old as education itself. However, learning to learn has typically been regarded as a side-effect, or by-product, of learning something. The curriculum in most sectors of education is concerned with learning something --- subjects, topics, skills, etc. --- and it is rare to find learning *per se* made the object of attention or analysis. Indeed, some argue that all learning is substantive and specific, and that one cannot therefore 'learn to learn'; although if this is the case, then one cannot learn to teach either, because that equally implies procedural and generic skills which go beyond the particular subject or substance of the class. All countries have an elaborate apparatus for training teachers to teach, but few make any explicit effort to teach learners to learn; and the implicit contradiction probably has more to do with professional structures and priorities than any thoughtful analysis of what is possible or beneficial.

Recent decades, however, have seen increased interest in 'learning to learn' (35). This may be due partly to the growing numbers of adult students who, on returning to study after a gap of some years, often express anxieties about, or encounter problems with, various aspects of formal study. It has also been stimulated by the problems of disjunction between secondary and higher education which some students experience, and which affect their performance on first degree courses (or indeed in post-graduate studies after the completion of a first degree). And there is a vague but nonetheless insistent feeling that many young people acquire very few transferable or general learning skills from their eleven or so years of initial schooling. Whatever the reason, the demand for 'learning to learn' is clearly there, in the steady sale of ubiquitous guides to study and the growing enrolments on 'study skills', 'preparatory' or 'access' courses.

Many such books and courses treat learning to learn as a matter of skills. They cover topics such as note-taking, essay-writing, time-budgeting and examination technique. Some explore more complex problems of concentration, memory, and interaction with other students. However, this emphasis on learning as a matter of skills --- almost tricks of the trade --- has in turn produced a reaction which emphasises that it is also a matter of understanding, self-organisation, problem-solving and self-awareness (36). It is a pity that these two approaches have to some extent become polarised. There are concrete learning skills which can be acquired, and which do give the student confidence and something to get hold of; and there is obviously a need for a reflective and analytic approach as well. And people also need a framework for change --- for example in the form of 'learning contracts' --- which will encourage them to set goals for themselves and actually translate some of their good intentions into practice.

The main difficulty, however, is the lack of a conceptual framework for analysing the study problems and placing the study skills in a more general perspective so that one can see how and where they can be applied. It is here that the frameworks sketched out in this paper may help, since they offer a general and relatively inclusive approach to the business of learning. The analysis of courses in Sections 2 and 3 are only indirectly relevant to the student or trainee, but the analysis of teaching and training relates directly to his or her

situation. It is important, however, that the use made of this is not heavy-handed, and it may be enough to ask the learner to describe and analyse a few of the key contingencies of learning, providing him or her with a few trigger questions in each case, for example:

Subject

Describe the subject/field/ skill you are learning.
Is it what you expected it to be like?
What do you find interesting about it?
What do you find difficult about it?

Staff

Describe one of your lecturers/trainers.
Do you think he is doing a good job?
How does he compare with other people who have taught you?
If you were he, would you do things differently?

Student

What are your strengths and weaknessess as a learner?
What person has had the greatest influence (positive or negative) on you as a learner?
What have been the most/least rewarding learning experiences in your life (inside or outside education)?

Institutional Environment

What do you think of the institution you are studying in?
Do you like the environment?
Does it help or hinder you in your studies?
In what ways would you change it if you could?

The purpose of the questions is not to specify set responses, but to set the person thinking about various aspects of his/her studies, and to provide some common ground for discussions with other students about them. Such discussions can be based on brief notes prepared by each student under each heading, and are perhaps better carried on at least initially in small groups of three or four, rather than in a larger group where the learner may feel more exposed.

Learners are likely to relate more easily to the contingencies than the functions of courses and teaching, and it may therefore be best to begin with them. However, if the functions can then be explained clearly and simply, without using jargon, they can provide valuable tools for the learner to analyse his learning situation, and in particular to identify any problems that arise. It may be better initially to approach this inductively, and ask the learner, or group of learners, to talk in general terms about their course and their experience of learning. The headings in the models can then be used, where appropriate, to focus and clarify the comments that are made. Another possible approach is to ask students what they want from a teacher/trainer --- what they think he should do for them that they cannot do themselves --- and to get them to rank the functions in terms of these needs. The functions can also be used as headings for student evaluation of courses and teaching, though they will typically need to be subdivided further, and modified to suit the particular course or programme. The use of the grids presented here, like all 'learning to learn' depends partly on timing. Students who are about to embark on courses usually want above all the immediate survival skills which will see them through the first few weeks and months: how to cope with note-taking, reading, the library, the first essay or assignment. As they get further into the course, they may become more interested in the nature (and problems) of the subject, the relationship with teachers, the interaction in the group, and the institutional context. As examinations approach, they will become the main priority; and so on. Learning to learn therefore (and learning to teach?) needs to be planned in relation to perceived needs and current experiences. But a purely instrumental or pragmatic attitude to it can lead to a form of trouble-shooting or crisis management approach which may lose sight of the most important aim of the whole thing, which is to enable the learner to become more autonomous.

'Learning to learn' is not however always or only an individual matter. The need for continuing learning in the workplace typically involves groups rather than individuals, and there is a growing awareness of the importance of creating a 'learning culture' in the work environment, a culture which goes well beyond the formal or institutional provision of continuing education. Appendix D suggests some ways in which the models presented in this paper could be used to analyse such 'learning cultures'.

The Training of Teachers and Trainers

Unlike the notion of 'learning to learn', the idea of 'learning to teach' is familiar and widely accepted. Indeed it has become institutionalised in the form of courses and qualifications for intending and practising teachers in every country in the world, industrialised and developing. The pattern varies, however, not only from country to country, but from sector to sector in each country. In the U.K. the system of teacher education is most systematic and complete in the school sector, where it exercises a virtual monopoly on entry to the profession. The main emphasis there is on pre-service education, although in recent decades there has been an increase in in-service education of various kinds, often in relation to changes in curricula, assessment and qualifications, and in educational administration. (The change of label from 'teacher training' to 'teacher education' reflects partly a shift to a broader concept of teacher preparation, and partly an attempt to raise the status of the activity.)

In further, higher and adult education, only a minority of lecturers have been trained to teach, as distinct from having competence and qualifications in their own subject or field. A system for training the remainder is gradually taking shape, but as yet has made relatively little impact on the majority; the pattern tends therefore to be post-experience rather than pre-service. The training of trainers in industrial, commercial and service fields tends likewise to be patchy, limited, and post-experience, although here again a more formal and substantial pattern seems to be emerging, partly at the instigation of the Training (previously Manpower Services) Commission. But the U.K. has never possessed the systematic structures for training trainers that have been in place in, say, Germany for most of this century, and indeed training, as a function in business and industry, has until recently had a relatively low financial and occupational status.

The actual nature and content of the training for teachers, lecturers, tutors or trainers reflect the underlying conception of teaching and training as activities. Broadly, one can distinguish between three models of teaching and training. The first regards

teaching as an art, which involves, like all arts, a combination of technique and inspiration (37). This results in a pattern of training which places the main emphasis on learning from role models: brilliant, distinguished or experienced practitioners who act as 'representatives' of their profession. In practice, the art of teaching has never been subjected to the same concrete practice and scrutiny as, say, the arts of acting or painting; as was pointed out earlier, the 'artistic' model of teaching has never really been taken seriously, and has acted as a rather watered-down metaphor to counter alternative conceptions of teaching. In addition, it implies that in the end teachers are born, not made; a statement which may be acceptable in minority occupations such as painting or acting, but which creates problems when one wants to staff a mass educational system with half a million teachers.

Secondly, teaching (and even more so, training) can be regarded as a craft, which involves, like all crafts, skills and judgement. The appropriate pattern of training involves both off-the-job learning and on-the-job practice. Again, this model has never been taken as seriously in teaching and training as it has in conventional vocational fields, though it is interesting that there are City and Guilds of London Institute (CGLI) and Royal Society of Arts (RSA) courses and qualifications in teaching and training. The problem with the craft model is that it tends to be conservative and routinised, a feature of much craft training, but one which works better in fields which are relatively stable and predictable than it does in teaching, where adaptability and flexibility are essential.

Thirdly, teaching may be regarded as an applied science or an applied social science. This model tends to divide teacher preparation into 'theory' (the foundation disciplines, such as philosophy, psychology and sociology) and 'practice' (which involves placements under supervision). While this distinction between theory and practice has never been delineated as sharply in the U.K. as it has on the continent, and the concept of teaching as 'human engineering' or 'technology' has never had the impact that it has had in the United States, this dualistic pattern of training has neverthless been the dominant one in the school sector until recently. In its pure form, the model assumes that we can generate descriptive and predictive knowledge about teaching through research, and that that

knowledge can provide prescriptions, rules or at least guidelines for teaching. In recent years, the model has been modified in several ways. One has been through the development of 'professional studies', such as curriculum studies or classroom analysis, which are intended to bridge the gap between theory and practice. It has also been increasingly argued, under the influence of Marx, Dewey and others, that practice can generate theory, as well as vice versa (38). But the basic problem with the applied science model is that there has been little science to apply; the relevant disciplines have not, on the whole, yielded the kinds of general theories and predictions which would underpin rules, prescriptions or algorithms for bringing about learning. And such theories as have been generated have often been applied in a crude and over-generalised way; 'programmed learning' is one example.

The conceptual frameworks explored in this paper may help to resolve this problem by establishing a middle ground of analysis between theory and practice. The SISTEMA and MODERATES models point towards real-life decisions and actions on the one hand, but they also lead back to concept, reflection and theory on the other. They recognise that teaching and training do involve practical skills --- but highly contingent and reflexive skills. They admit the importance of general concepts and theories, but attempt to relate these to concrete aspects of the activity. Selection, orientation and support are things one has to do, but they are also things one can think about, and draw upon theory and research to illuminate. It would seem appropriate therefore to use the two models to enable teachers and trainers to make a thorough and comprehensive analysis of the functions and contingencies of their work. As with the learners, it may be useful to list some trigger questions for each of the headings, not to be answered rigidly or separately, but to stimulate a response, and provide some common ground for work in small groups. Some examples of questions are listed below, but they are only examples, and it is equally important to encourage teachers and trainers to suggest their own. The slant on each heading will vary from person to person and situation to situation; what is offered here is only enough structure to begin. Likewise, the headings might be taken in any order, and cross-referenced in any way. The use of the contingent models is itself contingent.

COURSE FUNCTIONS

Selection

How are students/trainees selected for the course?
What is the relative emphasis on qualifications/references/interview/ other elements in admission?
What evidence is there that the selection process is a good one?
If you have open entry, is there a pattern of self-selection?
What information/guidance do applicants get?

Induction

Is there any formal induction of students? Does it work well?
What is induction about? The subject? The institution? Studying?
What kinds of informal induction are there?
Do you have many students who don't seem clued in?
In what ways does induction continue during the course?

Structure

Does the course have clear aims and objectives? Should it?
Are the parts of the course tightly or loosely related?
Any problems of co-ordination among the staff who teach on it?
Would you say the course has too much structure or not enough?
How does the course relate to other courses?
How far is the course bound by regulations?
How far can it be varied to suit the needs of the students?

Teaching

What are the main methods used? How much time is spent on each?
Why are these particular methods used?
Are the students over-taught or under-taught?
Do staff prefer certain methods to others? Do the students?
Has the pattern or style of teaching changed in recent years?

Environment

Would you describe the learning environment as a good one?
How satisfactory is the physical environment of the course?
How satisfactory is the social environment?
What are the main factors affecting the latter?
Does the social environment change much from year to year?
How would you change the environment if you could?

Materials

What materials, resources and facilities for learning are provided?
To what extent are the learning materials internally/externally produced?
What are the main problems in providing them?
Has the type of materials changed much in the last decade?
To what extent do materials or facilities constrain teaching?

Assessment

Are the students formally assessed? If so, in what way?
Has the pattern of assessment changed in recent years?
Are there any particular problems with assessment?
What do the results of assessment say about selection? the students? the curriculum? the teaching?
What are the students' main sources of feedback about their learning?
What is the role of student self-assessment?

COURSE CONTINGENCIES

Rationale

What is the rationale for the course? Why does it exist?
Who decides on the general aims and direction of the course?
Is the rationale for the course explicitly stated?
Are there differences of emphasis or priority among staff as to the aims of the course?
Has the rationale changed much in the last five years?
What do students see as the purpose of the course?
Does the course have hidden or tacit aims?

Regulations

How far do regulations affect the planning of the course?
Are they national, local or institutional regulations?
Do they affect selection, content, teaching or assessment?
Are there any less formal requirements or conventions which affect the course?
How far are the regulations open to interpretation? Are they sometimes ignored or got round?
Have the regulations/requirements changed much in the last five years?
What lies behind such changes?

Resources

How is the course financed? Has the basis of funding changed?
Are there strings or conditions attached to the funding?
Is what ways do resources affect the planning of the course? Student intake? Staffing? Materials and facilities?
In what ways do funding and resources affect staff attitudes?
What would you do if funding were increased/decreased by 10%?

Staffing

What is the staff-student ratio? Has it changed much?
What is the balance of full-time/part-time staff? Has that changed?
Has there been much turnover of staff? If so, why?
Is there much consensus or conflict among staff about the course?
About which aspects of it? Aims? Content? Teaching? Students?
Is there a formal staff development policy?

Subject

What is the subject of the course?
Is it a well-defined or loosely-defined subject?
In what ways does the subject affect other aspects of the course e.g. selection, structure, teaching, environment, assessment?
Is there much consensus/conflict about the nature and scope of the subject?
Has the subject changed much in recent years? If so, why?

Students

Describe the students in terms of their ability, motivation, educational background, gender, age etc.
How do these characteristics affect the planning of the course?
Has the student intake changed much recently? Quantitatively? Qualitatively?
Does the mode of attendance (residential, full-time, part-time, distance) affect the planning of the course?

Setting

How far does the physical setting of the course affect its planning?
How far does the institutional setting (structures, norms, traditions) affect its planning?
Would it be very different if it were being taught in a different locality, region or country?

TEACHING FUNCTIONS

Motivation

What motivates the students/trainees to come on the course?
Is the motivation an intrinsic/extrinsic one, a short-term or long-term one?
Is motivation generally a problem? If so, what do you do about it?
Do the students become more or less motivated as the course goes on?
Are there any aspects of the course which turn students off?
Do you think people are naturally energetic or lazy?

Orientation

Are there any signs that the students are disorientated or confused?
If so, by what? The content? The teaching? The institution?
How do they find out what is expected of them? How do they discover the ground rules or conventions of the course?
Are students given set objectives? Should they be?
Are you aware of spending much time orientating the students?

Demonstration

Does the teaching of the subject involve much demonstration?
How is this affected by the size of the group?
How is it affected by the facilities available?
What do you actually do when demonstrating?
Have you changed the way you go about it?

Explanation

Which aspects of your subject seem to need most explanation?
How do the students express the need for something to be explained?
What do you actually do when you explain something?
Is it more a matter of interpreting or exploring than explaining?
If the student still doesn't understand, what then?

Representation

Do you think your students imitate you? Do you provide a model for them? Or are you embarrassed by the idea?
How far do you think your attitudes and values come through to the students? Or do you regard them as private?
Do you see yourself as a representative of a particular profession, occupation or group?
Do you think you have changed much as a person in the last five years in ways which might affect your teaching?
Who were the important role models for you in education?

Activation

When are your students most or least active?
Are student passivity, lethargy or boredom generally problems?
How do you stimulate your students when you feel you have to?
When do they have most/least control over their learning?
Do you give them more or less control than you used to?
Do you ever think your students are simply going through the motions?
Do you ever feel you are?

Transmission

Is there a lot of information/factual material in your subject?
More than there used to be?
Is there too much/too little emphasis on it nowadays?
How do your students acquire such information? Through lectures? Reading? Other sources?
How much emphasis is there in the assessment of the course on the recall of information?
Do you rely more or less on lecturing/talking than you used to?
How far do you see your role as that of passing on knowledge/skills to students?

Evaluation

How do you give your students feedback?
How do they give each other feedback?
Do they get enough feedback at each stage of the course? How can you tell?
How useful is formal evaluation and assessment in giving feedback to the students?
Would you change the pattern of assessment if you could?
How do you get feedback from your students?

Support

How do you know when a student needs support? Can you tell?
Why do they need support? What kind of risk, problem or threat do they perceive?
Do the students vary much in the amount of support they need?
Do you think of yourself generally as a supportive person?
Have you got more or less sympathetic to students' problems in the last five years?

TEACHING CONTINGENCIES

Aims

Are the aims of the course real or merely rhetorical?
Do the aims vary much from course to course? Or are there certain aims which are common to all the courses you teach?
Do you have personal aims in teaching which go beyond or diverge from the official aims of the course?
How do you think the aims affect the students' learning?
How do they colour the course and the way it is taught?
Are you happier working without pre-set aims and goals?

Subject

What do you teach? Does the nature of the subject demand that you teach it in a particular way?
Is it a convergent subject? A linear subject? An impersonal subject? A precise subject? An applied subject? An emotional subject?
Does the subject have a particular feel, ethos or culture? Do the people who teach it have a particular stereotype?
In what ways is the subject difficult?
Can you contrast it with other subjects which you know?

Level

Do you teach a specified level of course?
What is the difference between higher and lower level courses in your subject?
Would you teach it differently if it were a higher or lower level course?
How do you gauge the level of the students at the beginning?
Do you think the course has got easier or harder in the last five years? If so, in what ways?
In what ways is the level of the course reflected in the assessment?

Students

Describe one student you teach.
What is he/she like to teach? Are you aware of approaching him in a particular way? If you were passing him on to another teacher, what would you say about him?
Has the student changed much since you began teaching him/her?
How average would you say that student is? Is he/she typical of the group as a whole? Is it easy to generalise about the students as a whole? Are they homogeneous or heterogeneous?

Group

Describe one group you teach.
Is it a good group? What do you mean by a good group?
Have the dynamics and ethos of the group changed over time?
Are you conscious of leading or handling the group in a particular way?
What problems have arisen in the group?
If you were passing the group on to another teacher, what would you say about it?

Self

Describe yourself as a teacher.
Is your style formal or informal? Personal or impersonal? Planned or spontaneous? Extrovert or low-key?
Do you think you are better at projecting yourself to others (coming across) or empathising with others (putting yourself in their place)?
Do you think you have particular strengths or weaknesses in teaching?
Has your style of teaching changed much over time? If so, why?
Why do you teach as you do? Do you think you teach the way you were taught? Were there crucial experiences or incidents? Or has it been a matter of trial and error?
Do you find teaching rewarding or frustrating? In what ways?
Do you expect to change the way you teach?

Physical Context

Where do you teach? In what kinds of buildings and rooms?
Are you very aware of the physical environment you teach in?
In what ways does it affect the way you teach?
Do you think that environment has social or educational messages for staff and students?
Would you change it if you could?
Have you taught in very different environments?

Institutional Context

Describe the organisation you work in.
Are you more aware of your immediate work contacts or the organisation as a whole?
Do you think the institutional context affects the way you teach ?
Do you work more on your own or as one of a group?
Would you say the institution has strong norms as regards teaching?
Has the institutional context changed much in recent years?
Would you change it if you could? If so, how?

Social Context

Is your institution affected much by the outside world, or is it relatively insulated from it?
If you were working in a different locality, region or country, do you think your approach to teaching would be very different?
Do you think changes in the broader social environment in the last decade have affected your work? In terms of your subject? Your students? The system? Your own profession?
Have you worked in very different societies or cultures?

A few points should be made finally about potential role and use of such questions in the training of teachers and trainers. First, it will be obvious that the wording of the questions may need to be changed to suit varying contexts. The questions have been phrased in relation to education only, in order to make them less cumbersome. Trainers would want to substitute 'trainer' for teacher, 'trainee' for student, 'organisation' for institution, 'programme' for course, and so on. People who work in nonformal educational settings, such as community development or voluntary groups, might also want to re-phrase some questions. Indeed, the difference between education, training and these other settings can be seen as not only a difference of aims, but in the contingencies of the work: the who, what and where. What is often presented as a clear distinction between education and training looks more like a series of gradations in certain contingencies --- the rationale, subject, teaching, physical and institutional environments in particular --- in the light of the two models presented here.

Secondly, it should be obvious that these questions can be used in various ways and at various stages in teacher training. One can ask people to write brief responses to each set of questions and then use these as a basis for discussion in small groups (see Appendix A). One can present people with existing case-material and ask them to discuss it before responding to the questions in their own case. One can ask people to interview colleagues at more length about their work, and use the headings to structure the material. One can ask people to look back at what they wrote previously about each heading. The process of formulating and responding to the questions is in fact continuing and endless, because teachers' and trainers' perception of their work changes over time.

What does one do then with such responses ? As suggested earlier, they can be pursued in two directions. What people say about regulations, assessment, explanation or activation can be used as a way into the research or theoretical literature on such topics; their responses create the need to know more, and to test opinions against evidence and argument. But the responses can also lead into the clinical investigation of practice, involving observation and even experiment. What people say about the various headings needs to be checked against what they do.

Research into Teaching and Training

The implications of the contingent approach for student learning and teacher training have been outlined briefly, and it remains only to explore even more briefly some of the implications for research into both fields. It will obvious by now that the approach to teaching and learning adopted in this paper is somewhat different from what was characterised earlier as the art, craft and applied science models of teaching. It is difficult, nevertheless, to locate it clearly within a particular research paradigm or tradition.

Contingency models are not new or rare; in fact, they permeate commonsense or pre-theoretical discourse ('well, it depends if he turns up, doesn't it, and what he says'). It is taken for granted in our everyday lives that decisions and actions will be affected by, and adapted to, the shifting circumstances and probabilities of human existence at every level from driving a car through maintaining a family. However, contingency models are less common in the organised knowledge and disciplines of the natural and social sciences, although they have been explored in the study of organisations and their management (39) (see Appendix B). Why then are they common in commonsense knowledge and apparently rare in organised knowledge?

One could argue that organised knowledge cannot be regarded as organised at all unless it has non-contingent models or theories of a certain explanatory or predictive scope and power; that the degree of contingency or non-contingency of its models and theories is an index of the state of development of a discipline or field (40) (See Appendix C). (It is not easy to define the difference between theories and models, but broadly one can say that 'theory' often implies a greater predictive power, and is perhaps the more common term in the natural sciences, whereas social scientists often speak in terms of models). Any model or theory in any discipline, however, must have a certain <u>scope</u> or generality; one may want to distinguish between theories and 'general' theories, but a purely 'local' or 'particular' theory which covers a very limited range of phenomena is a contradiction in terms. Likewise, models and theories are expected to have a certain <u>power</u>, in terms of explanation or prediction. (Again, we must set aside the question of whether explanation and

prediction are different from each other, or whether explanation is simply prediction written backwards, with causality taking a non-verifiable rather than operational form.)

The concepts of model and theory lie at the heart of the empirical sciences, both natural and social. But there is a difference of degree, if not of kind, between the two domains. The natural sciences seem to be characterised by relatively low numbers of variables and relatively high levels of prediction. By contrast, human and social behaviour often seem to involve high number of variables and low levels of prediction. (The relationship between variables and prediction cannot be discussed here.) In addition, it is perhaps more difficult to control those variables experimentally in the human field in order to investigate them, and to prevent the very process of investigation from modifying the object of investigation, although that problem is familiar also in the natural sciences. In general, however, it may be such problems which lead to the recurrent doubts about the scientific status of the social sciences, although much depends what one understands by 'science'.

The view of human behaviour, and specifically of teaching and training, which is implicit in this paper is that of the need to make often rapid decisions in multi-variate and relatively unpredictable situations. There can be no doubt that human beings do have the capacity to process information remarkably rapidly and arrive at complex, though not always effective, decisions. Fig. 3 gives one small example of this. The words along the top of the diagram are what a teacher said in a class in the space of about eight seconds, including two pauses; underneath is his report of what went through his mind during that time. It may of course be that the teacher reconstructed or rationalised his account somewhat after the event, rather than simply reporting it, and what the teacher said is only part, although perhaps the major part, of what he actually did. However, it is clear that the decision was a remarkably complex and rapid one, involving contingencies related to the content, students and himself. The implication of this is that although teaching decisions would no doubt be much simpler if we had rules, routines or algorithms to follow, some, and perhaps most, of our behaviour in the classroom is not in fact rule-governed or 'principled' in any simple sense.

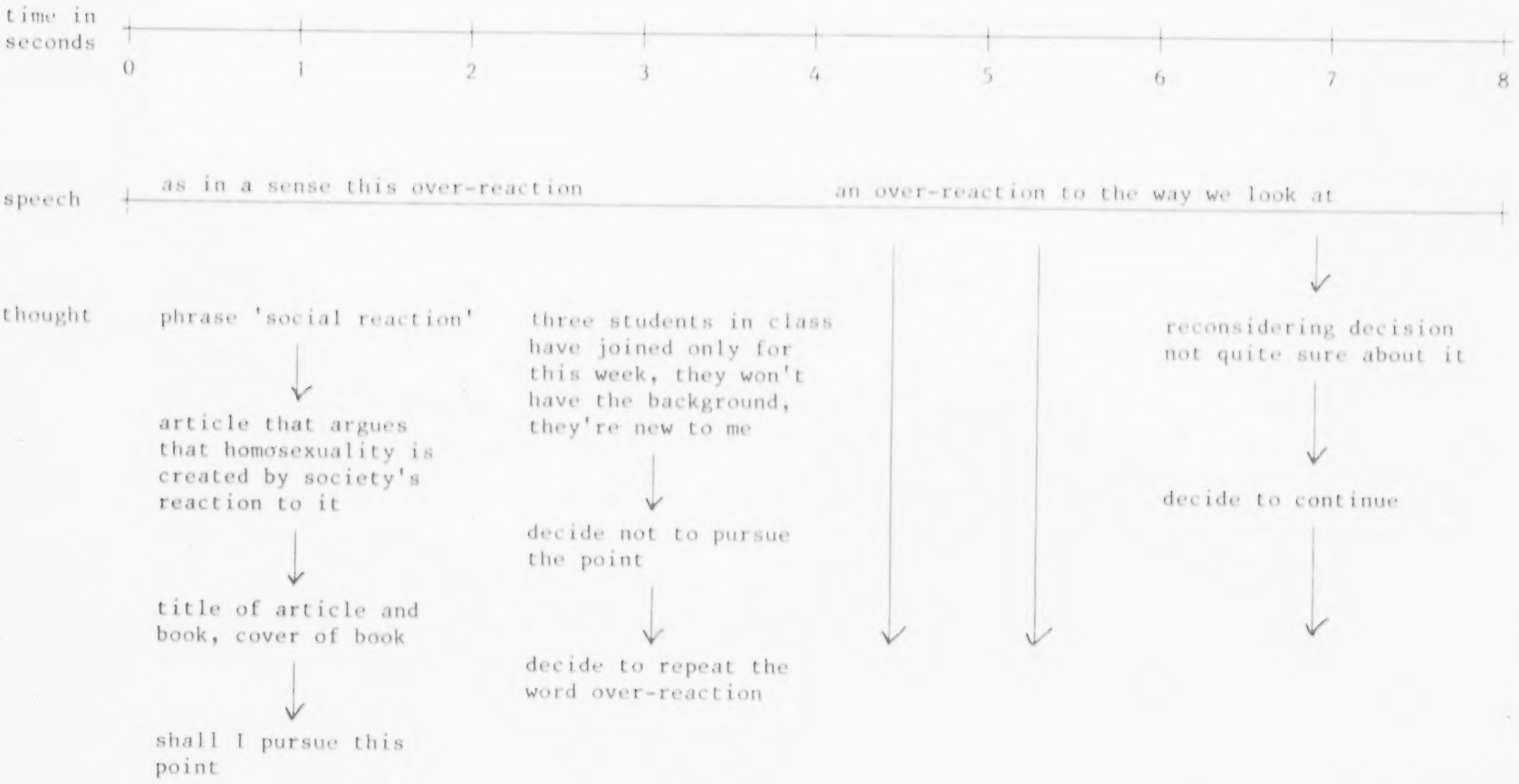
time in seconds
0
1
2
3
4
5
6
7
8
speech
as in a sense this over-reaction
an over-reaction to the way we look at
thought
phrase 'social reaction'
article that argues that homosexuality is created by society's reaction to it
title of article and book, cover of book
shall I pursue this point
three students in class have joined only for this week, they won't have the background, they're new to me
decide not to pursue the point
decide to repeat the word over-reaction
reconsidering decision not quite sure about it
decide to continue

Fig 3: Analysis of Speech and Thought over 8 seconds

In the field of teaching and learning, we have not only over estimated our ability to produce general theories and rules, but also our need for them. We can continue to teach and learn in semi-certain, semi-structured and semi-controlled situations; and we manage it partly by being quick not only in deciding what we shall do, but in retrieving or repairing situations which have gone wrong. Although teaching is a rather uncertain business, it can provide a good deal of useful and quite rapid feedback; and this to some extent compensates for the lack of predictability.

The models explored in this paper are an attempt to provide a clearer cognitive framework for teaching and training decisions, by highlighting the key functions and contingencies which the teacher has to think about. They do not and cannot 'sew up' those decisions entirely, because one would need to know the detailed circumstances of each decision in order to do so, and even then one is usually working on a best-guess basis as to the consequences of one's choice. But the approach points to a conception of teaching which, rather than seeing it in terms of the application of theory-based rules, views it as a combination of three elements: a cognitive representation or framework; an information-processing capacity; and a feedback cycle. Each of these can be researched.

The first involves exploring what the teacher thinks about or takes into account when he is teaching or planning his teaching. It should be possible to elicit this from teachers without supplying them with any predetermined conceptual framework, for example by using some form of personal construct theory and repertory grid technique of the kind developed by Kelly (41). However, it may also be useful to present teachers with an existing cognitive framework, such as has been explored here, and interpret their reactions to it. That may involve not simply asking people to respond to headings and questions, but to choose which questions to respond to, and to indicate their order of priorities and awareness. In either case, one will be trying to get at how teachers 'cognitise', map or represent the business of teaching; what they include or exclude, what their main constructs and categories are, which aspects of the activity loom large in their consciousness, and what they see as related to what.

Secondly, one can explore how teaching information is processed and decisions are made. This implies some general model or at least language of human information-processing. This is an extremely complex area, which is tangential to this paper, but it is worth noting a few ideas and terms which are suggested by current and recent work in the field. For example, the concept of 'search strategy' may help to illuminate how a person goes about tracking down relevant information in relation to a particular problem (42). Simon's notion of 'productions' (relatively autonomous if-then decision sequences) is also potentially fruitful (43). The concepts of repertoires and strategies which are found in current developments in cognitve psychology also seem relevant (44). Analogies with computers suggest that terms such as programmme and sub-routine may be useful in exploring the degree of routinisation of the decision process. This can manifest itself in both the speed and confidence with which decisions are made; the inexperienced teacher may delay and dither where the experienced one will act quickly and decisively. The experienced teacher may also be better at sifting out the relevant environmental cues from the 'clutter' that surrounds them. In general, the approach developed in this paper on a practical level seems to have some parallels in the theoretical literature in terms of a general shift away from 'applied science' models of expert behaviour, towards more contingent template or situational models (45).

This last point leads on to the third aspect of teaching mentioned above, the existence of feedback. Although teaching is 'prediction-poor' it is potentially 'feedback-rich'. Potentially, because the mass of feedback that can come in the face-to-face situation is often diminished by the size of the group, the lack of time, the need to attend to other things (such as one's own plans or 'script'), conventions which inhibit students from expressing themselves, and insensitivity or 'cue-deafness' on the part of the teacher. And, although teachers can get a great deal of feedback from their students or trainees, they often get surprisingly little from their colleagues, because of the conventionally private and sensitive nature of the work. However, it seems important to explore in depth what feedback teachers and trainers get in what circumstances and how they use it. Even the inexperienced, unskilled or untrained teacher can learn quickly if he or she receives and makes use of plenty of feedback.

This paper has been concerned only with the first of these three aspects of teaching and training; the cognitive representation or conceptual framework of the activity; and much more work needs to be done. The models developed here suggest two modalities (functions and contingencies), two levels (courses and teaching), 32 headings, and some 200 questions to structure the analysis of teaching and training. That may seem rather a lot; but in fact it is a considerable simplification of what is an extremely complex and subtle business.

APPENDIX A: EXAMPLES OF CASE MATERIAL

The following are some examples of case-material written by teachers and trainers in a variety of post-school fields, institutions and settings. In each case, the person was asked to write up to 150 words in response to the kinds of questions listed in Section 6, although the exact wording of the questions differed in some instances from those given there. The examples all relate to the contingencies of teaching, and have been chosen from a much larger number to illustrate some of the variety of the responses. Material such as this has been used as a basis for analysis in small groups of three or four, in which each person in turn presents his material to the others, and they all discuss it. So the written material is only a point of departure for more in-depth discussion. This can then be followed up by work in a larger group or reading which relates the material to some of the more formal or analytic concepts in the field, or by observation in the classroom to see how far what the teacher says reflects what he does in practice.

Aims

'...Most students who enter craft training come from low socio-economic backgrounds and therefore the skills they develop will determine their economic future. I stress the importance of becoming highly skilled and efficient in their craft because the difference between the poor craftsman, who may find difficulty in finding employment, and the good craftsman is simply attention to detail and an open attitude towards work. I try to make these values the theme throughout the training and therefore the trainees are aware of my values. However, there are other social, political and religious views which I hold but which rarely surface during my involvement with students or staff...'

Aims

'... I hold very strongly the belief that the urge to think things out, to enquire and seek to understand, is a defining human characteristic. We create the world by our understanding of it. Education is part of this. Indeed, I can't see why organised society exists unless it is to provide a framework for Education in its widest sense. What I teach is part of a whole continuum, and ultimately, it all has to connect up. Understanding something means understanding how it connects up with everything else, which means forever re-examining what one thought one understood already (or, you can't understand anything till you know everything). I think what I believe comes over in my teaching. In any case, I warn my students that my beliefs are part of my teaching. It does influence my teaching: it makes me harder to understand...'

Aims

'...I have a work ethic (which is more artistic than puritanical) and I tend to stress the importance of producing work...'

Aims

'...I do not have any general beliefs about the purpose of education and training. Being largely self-taught I am not a great believer in formal education. In my teaching I am trying to put over my subject rather than train or educate the students in a particular way. I enjoy my subject and want to express that enjoyment to my students and if possible pass it on. Although I have particular religious and political beliefs I do not seem to express them in my teaching and students are often surprised when they learn of them by chance...'

Content

'... Plastering is my main subject. It is mainly a practical subject, usually the teaching time is divided 40/60 theory and practice. It is a difficult craft to learn because it involves skills which are only used in that particular trade. General skills such as cutting, measuring and fixing are experienced by children at school and in their leisure activities, but the application and working of plastering material using plastering tools and equipment is usually confined to people in the trade. Plastering is often the one job the do-it-yourself person prefers to avoid. The material is difficult to work because of the rapid setting of some materials and it can be quite messy if not managed properly. The work is also physically demanding...'

Content

'... I teach radiography. This is a complex subject with a number of components. These components include human anatomy, physiology and pathology, physics, care of the patient... Because the subject is the sum of inter-related parts it needs to be taught in an integrated way. However, to suit timetabling, examinations etc. subject components tend to be taught in an isolated way which makes it difficult for the students to see how inter-related the topics are. There is also a tendency for theory to be divorced from practice and efforts are needed to overcome this. Emphasis on an integrated approach and also on transfer of training has to be to the fore in my teaching...'

Content

'...The women's studies courses are quite 'political' --- yes, they can only be taught in a particular way, and maybe 'teach' implies the wrong approach. Much of the work is discussion as well as facts, and opinions play a strong part in the work --- one has to start where the women are. There are no 'right' answers often, one has to be prepared to learn oneself, and validate other people's experience ... There are real problems in doing any kind of consciousness raising and confidence raising work --- one has to warn students of the

consequences and help them to cope. These courses cannot start and stop like 'O' level English. There is a lot more emotion engendered and possible anger and frustration brought to the surface, than in teaching pottery or 'O' level physics...'

Content

'... Mechanical/production engineering does have an individual culture. To work in a job which tends to be low paid, has low social esteem, tends to be noisy, dangerous, dirty and repetitive requires a certain amount of tolerance and sense of humour --- you don't find many sensitive arty types 240 feet up at the top of an oil-rig, upside down trying to weld a joint to tight British Standards with a force nine gale blowing up your trouser leg...'

Content

'... Psychology does have a particular feel to me, but this may only emerge after long experience: it is probably quite difficult to obtain an adequate 'feel' in less than a 3yr undergraduate + 2yr postgraduate involvement...'

Level

'...Our entry requirements include an A level pass in Mathematics at grade B. This, unfortunately, is not sufficient to ensure that the student is capable of undergraduate work. The reason lies in the difference of emphasis between school mathematics and university mathematics. At school much of the emphasis is still on manipulation (contrary to the commonly held view !) whereas at university the emphasis is on the understanding of the rules of manipulation and on the construction and properties of abstract systems defined axiomatically by their rules of manipulation. The manipulative pure mathematics familiar at school is perhaps closer to the applied mathematics techniques courses at university. The other applied mathematics courses require an element of intuition which again is missing from the public examination dominated school work...'

Level

'... In the main I teach to three levels: (1) students training for nurse registration, (2) pupils training for enrolment, and (3) post-registration education. The level is dictated by the job each of the above groups has to be able to do. The definition of each job is clarified by the English National Board, who list the level of competencies (as set by the United Kingdom Central Council for Nurses, Midwives and Health Visitors in regulations) each grade of nurse has to operate at...'

Level

'...Most difficult is the need to get down to a level one is not used to --- YTS, SEN. Despite starting with good resolutions found simplification was not simple enough and constantly revised down i.e. simpler still and slower. Also found problems with culture gap i.e. did not know that 'kids' meant young males --- the females were

invisible. As someone who enjoys and uses a bit of bawdy found the endless sex obsession extremely tiresome. However, did find some common ground (Hill Street Blues) and until that happens --- however it happens --- nothing will be achieved. So you watch out for clues and when you find them drop them in to start building some sort of a relationship...'

Level

'... It takes a long time to know what level a student is at. Often frequent written and discussion work is all you can go on, though now I'm experienced enough to assess the levels of work I teach them at. I think it's hard to tell how far a student can go in the future. Particularly with adults, so much can be hidden. Also, lack of general education can mask great intellectual capability. I think making students confident enough to blossom is the only way, and giving them opportunities and techniques they missed before...'

Level

'... Measuring level? Look at the eyes. If they are glazed you have lost them. Repeat, paraphrase, re-think ad lib. ad nauseam...'

Student

'... I don't actually know his name: he is one of a large group following a first year survey course, and I don't see him in any smaller groups. In a small group he might be difficult to handle. He stands out in a large lecture theatre, first of all because he sits in the first occupied row, and secondly because in a class of determined note-takers, his is the one raised head. Not only does he watch me, which makes it hard, when there is so little possibility of eye contact with the others, to avoid lecturing to him alone, but he never hesitates to ask questions, and the questions he asks are devastatingly obvious and insolent, but they do go right to the heart of the matter. They deserve careful and reasoned answers, and I am grateful for them, but this only increases the risk of turning the lecture into a dialogue which excludes the others. If I were passing him on to another lecturer I would say, 'Watch out for this guy, he's good...'

Student

'... He is a third year student on a CGLI craft course, aged 18-19. He attends college on a day release basis, one full day plus one evening per week. He wears his hair slightly longer than those in his peer group and dresses typically in jeans and a leather jacket. He mixes with the less able group of the class and sits at the back, where most of the trouble-makers tend to sit. At the time of writing he is under threat of being sacked by his employer for reasons of which I am not aware at the moment. He is a likeable, jovial, cheerful young man who gives the impression of not really caring whether he retains his job or not and yet almost always gives me the impression of being interested in the course content when left on his own to get on with some aspect of course work. At times he seems quite engrossed in his work and is probably the one student in the class with whom I have the

most interaction, either through questions about course content or through the everyday banter which occurs between staff and craft students. Of the group of four 'outcasts' who sit at the back right hand corner of the class he tends to be the natural leader to whom the other three turn for help with set coursework or homework. He has a slightly lower than average ability than the rest of the group but higher than the other three in his group who sit at the rear of the class (the whole group tends to be better than the average craft class). He's an enigma, a challenge, a student who I feel is not quite emotionally or intellectually mature who probably lacks confidence in his own ability and certainly derives great pleasure when encouraged or praised. He seems to be holding back academically through fear of yet another kick in the educational crutch --- he probably didn't do well at school and therefore he's been branded a failure and is psychologically afraid of that failure being reinforced by another educational establishment...'

Student

'...He is 73 years old --- a retired gentleman and this sums him up. He comes to two classes at the centre --- my 'Cooking for One' and 'Keep Fit for the over 40s'. He lives on his own and his family are near him and very supportive. His wife died some years ago. There are ten students in my class, 7 women and 3 men, and in the 'K.F. for over 40s' there are nine women and himself... HE CAN HOLD HIS OWN. All the students admire him and I think like to 'mother' him and take an interest in him. Admire in the sense that he does go to class with so many women and that he is very well adjusted to the situation...'

Student

'... Choosing one student to describe is something of a problem. Students who immediately spring to mind are usually at one or other end of the academic spectrum. However this is not always the case, and Miss. X who I now describe, is a student of average academic ability. In her first term I mistakenly supposed her to be a mature student, partly because she seemed to be friendly with other mature students and partly because she was willing to ask questions during the lectures. She is now studying a second year option which I teach and is a popular member of the class, although distancing herself from a group of quiet and very able girls in the same class. She is fairly conscientious and attends most lectures. Unlike most mathematics students Miss X can be rather argumentative and does not readily accept criticism of her solutions to the set work in tutorials...'

Group

'... The eight individuals in the group are in their final year, almost at the end of the course. A year or so ago I would have said they were a 'good' group --- lively in class, keen to learn, friendly, willing to seek advice or guidance with their studies. However, over the last six months the group has become more 'withdrawn'. There appears to be some rivalry or hostility that is difficult to pin down. One member has become something of an outcast and this could be due to a rather torrid personal love affair which was openly discussed by the remainder of the group who it seems largely disapproved. Whatever the cause, the atmosphere which is sometimes present in class can make

teaching difficult. Discussion is often inhibited and there seems to be a noticeable amount of nonverbal communication going on during classes, the object of which is not the subject under discussion. As individuals, all have many likeable qualities but as a group they can be quite unforthcoming. Teaching them can be hard work...'

Group

'...Class of 16+, 2+ O level secretarial students. Noisy, puppy-dog quality which did not hinder a great deal of hard work during the year. The contrast with this year's intake of supposedly identical girls is amazing. This year we have two groups both distinguished by their quietness. Group A appears to be quiet as a result of shyness, reserve, etc. Group B appears sullen. Group A, however, has come together as a class; Group B remains fragmented into several small cliques who do not appear to like each other. I find both groups this year 'difficult' largely because the running jokes that developed last year are not in existence. They are not, however, really difficult as classes in school are reported to be. Passing them on to another teacher I would no doubt rate last year's group as best followed by A, then B. However, this is not really a true assessment. Individual student's personalities vary --- so do those of classes. Both groups are producing good work this year. What we have is my perception and preferences...'

Group

'... Of all the groups I have taken this is one of the best --- most enjoyable --- and highly motivated. I look forward to it each week and certainly do a lot of preparation for it. Generally the group are retired people on their own --- all but one are over 58 and this girl is in her 20s, unemployed with a degree but personal adjustment problems. The class was purposefully put on Monday a.m. to help lonely people adjust after a weekend on their own. It has worked excellently, and has certainly developed a club atmosphere. All are very supportive of each other's needs and particularly helpful to the 25 year old. The group are very good at taking in new people and making them feel part of it. The only difficulty with them is that they may not want to break up as a group...in time it may become a 'safe environment'...'

Self

'... I think I am a 'comfortable' teacher. To students I probably appear warm, friendly, approachable, not heavy, not intellectually brilliant. I try to relate to them a lot, try to be 'on their side', am probably not regarded as an 'authority' on anything. I try not to be paternalistic (I compare my style with those of other colleagues and try to guard against this and other aspects)... I definitely enjoy teaching (at whatever level and whatever kind of group) and this I regard as one strength... I am too easily subdued by inadequate institutional support...'

Self

'... I have bad hand-writing...'

Self

'... I think my age is a drawback now. I am a middle-aged woman and as such rather remote in age and interests from the students. When I succeed with a class, and by succeed, I mean to achieve some teaching with some students in a reasonably pleasant atmosphere I do it by persistence --- regular preparation, regular working, insisting on work being done to an acceptable standard. I think the plumbing trainees begin by seeing me as a middle-aged, middle-class woman and therefore fair game. The fact that there is an examination, externally moderated course work and the possibility of referral to the course tutor enables me to hold the class and work through to a better relationship...'

Self

'... My role as a senior nurse educator/manager requires me to be responsible for any necessary disciplinary action e.g. counselling, verbal warnings, written warnings in line with the 'Protection of the Employee Act'.... This at times alienates me from a group, therefore I have to break down barriers when going in to teach e.g. if I have just terminated a group member's contract I then have to go in and teach the group. My position (in the hierarchy) plus the generation gap gives rise to the supposition, to an 18yr old, that I cannot possibly have gone through the system as they are having to progress. Since I hold their job future in my hands it is difficult to establish the same rapport as a tutor...'

Self

'... My students find me brash and aggressive, especially in lectures, where I have a definite larger than lectern persona: lectures are a performance, although I do step aside from the persona to comment on the performance. The performance is to fix the attention of a group in a large space, and the standing aside from it is to show I don't take it or myself too seriously: I am open to question and so is what I say. I know from feedback questionnaires that they find the lecturer-audience relation reasonably good, and I can tell also from the reactions I get. But I also know that a lot of them are afraid of me. It has even become a joke. Recently, one of them told me she thought I had mellowed. I pointed out that I was the same as ever, if not worse: the crucial difference was that she had spent a year teaching, and this gave her a different slant. She agreed...'

Self

'... I try to be ordinary, like I normally am --- I find a facade too difficult to maintain --- I'm a rotten actor. I try very hard and do a lot of work for each class --- I'm not so confident that I can go in unprepared. Anyway, adult students deserve the best you can do. I think I appear to be a fairly well educated middle class woman with a strong Lancashire accent --- they can't make me out. I'm neither one

thing nor the other. I hope the accent helps me to relate to working-class women, but I fear they know I'm not working-class and can be quite suspicious...'

Physical Context

'... The activity could be carried out anywhere... the only differences in physical environment I have met are size of room and flat versus raked: I don't think it makes all that much difference: the people matter more than the places...'

Physical Context

'...Craft students have until recently been relegated to the Annex. They tend to come to college, believe themselves to be thick (nobody previously seems to have told them that they are intelligent!) and therefore second class citizens. Being housed in an annex 'out of the way' seems to reinforce this --- they even believe the lecturers to be second class lecturers because they have to teach in the annex. Their attitude to staff changes if they are informed that they also teach at the main site...'

Physical Context

'... From classroom through to clinical situation the size of the student group becomes smaller and thus the learning situation more personalised (individualised) and more interactive between teacher and student. In the clinical setting the relationship between student and teacher is closer, even more friendly. This is different from the classroom where furniture etc. forms barriers to close relationships...'

Physical Context

'... The training room is situated on the top floor of the store ... we hardly ever have any disturbances, all telephone calls and visitors are connected with YTS business. The room is large and well equipped with tables, chairs, flip-charts, OHP etc. but is nothing like a classroom. The tables are in a block with chairs around so that everyone can see one another and participate. Because the room was redecorated by trainees as part of a project last year, trainees do look after it. It is light, spacious and quiet therefore it is easy to concentrate but if we are doing role-play and get noisy we are not disturbing anyone. All in all, the training room could be called a happy, welcoming room, perfect for learning situations...'

Physical Context

'... I've usually taught in a small, fairly dingy tho' clean classroom, in an 1870 Board School converted for use by adults. Yes, it does affect us when it rains in, or when it's too cold. It depends on the group whether they think I'm responsible for the conditions or not! Usually we suffer together, and I feel apologetic that they have to put up with these conditions. I've never taught in a really decent environment i.e. warm, with comfortable seats, coffee laid on and a

carpet. It must be nice...'

Institutional Context

'... I am far more aware of the department within which I work than the institution as a whole, and even more aware of the section to which I belong. I have recently though become more and more aware not only of the institutional context but even wider than that the whole educational spectrum, through a number of factors, e.g. Open University courses, various committees of which I am a member, a local CPVE consortium .... Engineers I think tend to be insular by nature, congregating in the staff room at coffee/tea/lunch breaks. The mech.eng. staff are a very tightly knit bunch working very closely together to get the job done as efficiently and effectively as possible... Morale has, however, taken a severe battering over the last 3 years in particular with quite drastic reductions in staffing in our section... the department seems to be in a constant state of flux with numerous changes coming from a variety of sources ... What happened to the cushy job my students keep telling me I've got ? Every year people say 'it can't get much worse' but every year it does...'

Institutional Context

'... Because I teach part-time I don't think the institutional environment has much effect on the way I teach. I teach as I do because of my personal environment --- my upbringing, my education, my interests ... I am conscious more of being an English teacher than of being a member of staff of XXXXXXX. My allegiance is to my profession rather than to an institution...'

Institutional Context

'... The centre is quite self-contained. There are no full-time staff or 'bosses' on the premises. However, we are made aware of the 'wider context' by the frequent reorganisations and changes that are imposed, so a sense of insecurity has developed, despite our best intentions, amongst us org/admin and the 70 or so part-time staff. Tight financial constraints are always imposing pressures. However, the staff still get on well with each other and the students, and quite a 'homely' environment is maintained and fostered so that people feel welcome. We try to be innovative in our curriculum development, and I think the Centre has many things to commend it...'

Institutional Context

'... I am very much aware of the immediate context of the Department. What counts here is the flavour: does my contribution fit in with the general orientation of the department, or is the language aspect of minor importance, things like that. I need to feel we're all going in more or less the same direction. I also like to be aware of language minded colleagues in other departments --- who may be more important in some ways than Departmental colleagues. Outside that, the institution is general resonance. There is an institutional ethos, but that is not so much a function of the institution as part of my beliefs, I think. Certainly, the current climate is not conducive to such an ethos...'

Institutional Context

'...Working in an educational department within a penal establishment means that you are in a section within a whole that is not education orientated. I find this to be of great importance. Our department is just one cog in a large wheel. In a list of priorities within the establishment education is not very high. Security, feeding and keeping medically fit the inmates are more of priority areas than education. But management sees education as an important part of the establishment's work. The institutional environment certainly affects the way I teach. All teaching has to be performed within the security arrangements --- controversial subjects have to be handled delicately and tools and materials used in craft classes have to be checked regularly. Prison Officer presence is necessary in Education Corridors (teachers are employed to teach, Officers to attend to making inmate students available for classes and disciplinary duties). When there are shortages of Prison Officers it is necessary for classes to be cancelled...'

Social Context

'...Find the current cohort extremely tolerant and caring young people. Also find constant hobby-horse of mine in the past --- girls should plan for at least a working life of 40 years if not a career --- is taken for granted. Take no credit for any of these changes and the last is largely due to girls' wider material aspirations --- now they expect to own a car, then they hoped for a boyfriend who had one. Other great change has arisen from employment changes. Spend a lot of time insisting that students are employable; do have marketable skills; will get a job. Combination of media pressure and (possibly) careers advice at school seems to have brain-washed them into too great a level of despair ...The 'cultural environment' of my students will get more difficult for me to cope with now that my own family is out of its teens. Managed to be quite with it for about 10 years...'

Social Context

'... People today demand a more informed approach to their care. They no longer accept things without question. The general environment has changed in recent years... people are more politically aware, they no longer see the health service as a 'free' service...'

Social Context

'... Perhaps the present day youth culture is more involved with issues concerning society than with issues concerning the physical world. I certainly think that present day students are less observant of the world they live in and perhaps a little less imaginative. This affects my teaching. I now have to illustrate physical applications of mathematics with concrete examples whereas a few years ago students would have provided their own illustrations, with just a little prompting, from everyday experience...'

Social Context

'... The present climate is one which is devaluing education, therefore one's status is declining gradually, which in turn affects the momentum with which one normally proceeds... (I have taught) in America where college/university is the expected norm and education tends to be much more highly valued, in a university (large) with vast resources, highly motivated staff and students (a combination of this US institution/environment and British students --- high calibre -- would be getting towards an ideal situation...)'

Social Context

'... Construction training is so closely tied to industrial influences that in the past the number of apprentices depended on the economic state of the industry. Today with the introduction of the YTS programme the links between training and the state of the market has been broken. Employers can now train youngsters with little or no direct cost to their company. Therefore, the volume of training is increasing at a greater pace than the industry's workload...'

Social Context

'...I'm sure the political move to the Right in the country has pushed some of us further to the Left. We try to cater for people who this new 'self-help' social environment has failed in many ways...'

Social Context

'... Older people will not come out at night...'

APPENDIX B: CONTINGENCY IN THE MANAGEMENT OF ORGANISATIONS

If the general arguments advanced in the last part of Section 6 of this paper are valid, then contingent models may be appropriate not only in the teaching and planning of courses, but in the management of education and training as well. Management, like teaching, involves often rapid decisions in multi-variate and relatively unpredictable situations, and the answer to many questions about management also seems to be: it depends. There is not room here to explore this further application of the approach in any detail, but it may be useful to sketch out what a contingent model of management might look like, as a point of departure for further work in this School.

Why do we need managers at all? Why do organisations have to be managed? Why can't they be self-organising and self-managing? The idea, or ideal, of natural or spontaneous organisation was perhaps made most explicit in the anarcho-syndicalist tradition earlier in this century, but it finds contemporary and less theoretical expression in the current notions of 'participative', 'community' or 'nonformal' organisation and the more general, if diffuse, critique of formalised management. The analysis of the functions of management must therefore proceed from an analysis of the limitations of natural organisation, and more generally from the pathology of organisations. What typically goes wrong with organisations? What are their inherent defects or at least dangers? Why do they sometimes never get off the ground? In what ways do they come unstuck? Why do they sometimes begin well but end up in a mess?

The simplest reason why organisations do not work is that they are not (in commonsense terms) organised: the tasks and processes which they are supposed to perform are not adequately specified, codified, allocated or assigned. Things fall through the net, messages do not get passed on, documents get misrouted or cannot be found, and so on. One basic function of management is therefore routinisation. The term has familiar, bureaucratic associations (e.g. routine enquiries, routine decisions) but the newer computer connotations of the word (routines, subroutines) are also apt because routinisation is increasingly a man-machine phenomenon, and many organsational processes which are routine can be effectively computerised.

A second basic reason why organisations sometimes do not work stems from their very size. Because they may comprise not only numbers of people, but numbers of departments and subsections, it is easy for some of these to get out of line or out of phase with others, and for the organisation to become incoherent or even to disintegrate, with each part doing its own thing, unaware of what is being done elsewhere. The conventional management concept here is co-ordination, but that may imply a rather centralist and rationalist model of organisation, and a term like integration (or even harmonisation) may be more appropriate. Dis-integration may be as much a problem of norms and attitudes as of structures and processes.

A third common problem is the failure to supervise the routines which have been established. Whereas integration relates to the lateral or horizontal relationships within the organisation, supervision relates to the vertical ones, and the need for people to oversee and take responsibility for the work of others under their charge. Again, this

function is increasingly becoming automated and computerised (cf. the term 'surveillance') but at the higher levels of the organisation seems likely to remain a human function. The fourth basic problem is the tendency to avoid evaluation. Perhaps because individuals and organisations come to have a psychic investment in what they do, they are often less than keen to evaluate the outcomes of their work, and hence it is a function of management to overcome that natural reluctance, and ensure that there is systematic and regular feedback and appraisal of staff and outputs.

These four functions --- routinisation, integration, supervision and evaluation --- derive from the most obvious defects or pitfalls of 'natural' organisation. But there are other dangers which arise particularly when the organisation has become well established. For example, established organisations can find it increasingly difficult to prioritise, since everyone, and every department in the organisation comes to believe that its own work is just as important (if not more so) than everyone else's. Attempts to establish priorities are resisted as 'divisive'. But organisations cannot do everything, and as external circumstances change, internal priorities may need to also. Established organisations can also become inward-looking and introverted, and fail to notice changes in their external environment. Even organisations which are very 'efficient' internally may end up being efficient at the wrong thing. This points to the need for management to look outwards and systematically scan the environment, rather as a radar does, for changes which will affect the organisation.

Established organisations may also become preoccupied and even obsessed with the present, and fail to plan ahead. This does not necessarily mean long-term planning, which may be impossible or even dysfunctional in a rapidly changing world (cf. Lindblom's 'incremental approach'), but it does mean being concerned with the future, whether that future is deemed to be surprise-free or fairly unpredictable. Organisations need to try to be ahead of the game (whatever kind of game it is) or at least not to be left behind. Likewise, the very success of an organisation in the present may mean that it fails to invest for the future i.e. fail to hold back from wages, dividends or recurrent expenditure some of the surplus it creates, in order to accumulate capital, invest in new plant and equipment, acquire new facilities, recruit and train new staff and develop or re-train existing staff. Planning without investment is an empty exercise, and there is a need to guard against 'short-termism' in various forms. But perhaps the most subtle and intractable problem for the established organisation is to overcome the growing rigidities of structures, norms, attitudes and habits which are a very by-product of its need to routinise and secure itself. This points to familiar needs such as innovation and initiative, but the essential problem may be a more negative one (de-constructing, unlearning, loosening up) which arises from the very need for organisations to both maintain and change themselves --- a structural and psychic contradiction or at least tension.

Nine functions have been tentatively identified: routinisation, integration, supervision, evaluation, scanning, planning, prioritisation, investing and innovation. But there is one more elusive but crucial management function, in both the fledgling and established organisation. Economists point out that formal labour contracts are inherently incomplete, and that workers always have an element of discretion or freedom in how they approach and do their

work, even sometimes in their choice of work. This discretionary element is influenced by group norms and personal motivation, and affects the intensity and quality of work. Conventional management theory conceptualises this in terms of motivation, but it is perhaps the group norm --- the general climate or ethos of the organisation --- which is critical, since individual motivation will typically conform to this over time. Spontaneous organisations, such as community groups or self-help co-operatives, may have a very positive ethos or climate, even when their structures and processes are inefficient; but in all organisations, climate-setting or to coin a word, climatising, is a key management function. Indeed the importance of climate, norms and attitudes may be inversely proportional to the structural elaboration of the organisation. The 'tight ship' may depend less on the climate and motivation of its crew than the organisation which appears to be structurally loose. The organisational climate is particularly important where employees' discretion is reinforced and extended by the concept of professionalism, as it usually is in education.

Such functions raise a final question: is leadership a separate and distinct function, or it is a composite of some or all of the above ? The fact that different leadership styles exist and seem to work in different circumstances suggests the latter. The leader is perhaps best viewed as the person who identifies which of the above functions are not already being performed, and takes them on himself or herself; this implies a rather contingent concept of leadership. Beyond that, however, leadership may involve embodying or representing what would otherwise be rather abstract qualities or goals (cf. the discussion of Representation in teaching, in Section 4).

What contingencies affect these functions in practice? Organisations differ from one another in their purpose, internal structure, process and ethos, and external environment. At the heart of all organisations lie the three classical factors of production (land, labour, capital). In organisational terms, this means plant, personnel and finance; in education and training terms, buildings and equipment, staff and funding. The nature of, and relationship between, each of these can vary. Equipment will be relatively important in a science or engineering faculty, much less so in the arts. The staff profile may vary in terms of age distribution, subject distribution and the ratio of full-time to part-time. Staff norms and attitudes may also be crucial. The pattern of funding can vary in terms of its source, cycle, and conditions. Moreover, the degree of substitution between the three factors will also vary; in some cases, one may be able to substitute equipment for staff, as is happening with some secretarial posts. In general, however, education in common with some other services seems likely to remain fairly labour-intensive, with limited possibilities for factor substitution.

These three basic factors are 'framed' by four more which relate to the nature of the organisation: its scale; its time-scale; its structure; and its culture. Scale or size has an obvious bearing on integration and prioritisation, but also more subtly on the relationship between formal and informal structures; in a small organisation everyone will know everyone else, but not so in a large one, and quantitative changes in the scale of the organisation can at certain points lead to qualitative changes in staff relationships. The time-scale influences the scanning, planning and investment functions. An institution may teach on a one, two or three year time-scale; but the time-scale of research can be much longer. The internal structure

of the organisation affects prioritisation, routinisation and supervision. Its culture --- the ethos or 'way of life' of the company or institution --- bears on the climatising function, but also more subtly on supervision, scanning, innovation, investment and evaluation. For example, a poor company culture entails closer supervision which ultimately increases costs; and a very conservative culture makes innovation difficult and sometimes impossible.

These four frame factors have to be seen in turn in the wider context of the organisation's environment, inputs and outputs. The organisation may be more or less affected by its general socio-economic environment; the nature of the 'boundary' between it and the outside world is important. Educational organisations, however, are typically affected by their economic, legislative, political and social environments to a considerable degree, and changes in that environment cannot be disregarded. For example professional and vocational courses have to operate within a framework of regulations or requirements, and non-vocational ones have to be sensitive to changes in social need and demand. Politics and policy affect education in different ways in different countries; and there are wider and more elusive socio-cultural factors, which for example influence the status of education and teachers. At the same time, it can be argued that some forms of education and research should be relatively insulated from their environment, if only to distinguish the longer or less predictable rhythms of change and need from short-term priorities.

The inputs and outputs of the organisation also affect its basic nature and processes. Enrolling students is not the same as admitting patients or registering guests, and all of these are different again from extracting oil or minerals. Producing students is arguably different in some respects at least from treating patients, making cars or retailing food, and it is important to analyse the differences and similarities between the various kinds of output. The nature of the output affects the planning and evaluation functions in particular. One of the problems of education is that many of the aims and outcomes attributed to it are medium-term or long-term (generic skills, adaptable workers, trained minds, autonomous individuals, informed citizens) whereas its typical modes of evaluation (such as assessed course-work and examinations) are immediate. Perhaps we need more follow-up studies of the 'output' of education systems.

Ten management contingencies have been tentatively identified: the three factors of production (plant, personnel, finance); the four frame factors (scale, time-scale, structure, culture); and the three factors which relate the organisation to its context or setting (environment, inputs, and outputs). These contingencies and the ten management functions are shown in Fig. 4; and the same caveats made about the other models of course planning and teaching apply to this one also.

Two more points should be made. First, as with medicine and teaching, the very attempt to formalise the management function can create its own problems which do not exist in the more natural or spontaneous organisation. Managers like other staff can become rigid and set in their ways, can fail to work in tandem with one another, can avoid evaluation, and so on. But there are dysfunctions peculiar to formalised management as well as these more normal failings. The

existence of designated managers can lead the other employees to abdicate all organisational responsibilities and functions themselves ('well, that's their problem, that's what they are paid for') and can lead to the implicit assumption (on the part of both workers and managers) that management only occurs where it formally takes place, instead of being an activity which permeates every level and aspect of the organisation. Managers can also grow remote from those they manage, and develop their own priorities which may have little to do with the success of the organisation. In short, formalised management can have some of the same negative side-effects as formalised teaching or education.

It should be noted finally that the functions of management are not logically the same as the qualities or skills of a manager. The qualities or abilities that a person needs in order to perform these various management functions in the light of the management contingencies are themselves complex, and cannot be explored here. But many of the functions seem to involve a mixture of five basic capacities: to analyse the situation one is in; to organise the human, financial and physical resources at ones disposal; to project to others ones own energies and priorities; to empathise with them; and to know oneself. On reflection, these may not seem very different from the capacities needed to teach or train.

CONTINGENCIES

FUNCTIONS	PLANT	PERSONNEL	FINANCE	SCALE	TIMESCALE	STRUCTURE	CULTURE	ENVIRONMENT	INPUTS	OUTPUTS
ROUTINISATION										
INTEGRATION										
SUPERVISION										
EVALUATION										
SCANNING										
PLANNING										
PRIORITISATION										
INVESTMENT										
INNOVATION										
CLIMATISING										

Fig 4: A Contingent Model of Management

APPENDIX C: THE TEACHING AND TRAINING OF ADULTS

In recent decades, various attempts have been made to develop prescriptive models and guidelines for the teaching and training of adults. Some of these have been conceptualised in terms of a theory of 'andragogy', the teaching of adults (strictly speaking, men) which is contrasted with pedagogy, the teaching of children (46). In other cases, the ideas have been presented not as a general theory, but as a looser collection of principles, guidelines or tips (47). Although these various approaches differ a good deal from one another, they all assume that the adulthood of the adult student is a key, and even determining factor in the way one plans and carries out teaching and training.

There is no room here to discuss the development of such theories and approaches; to some extent they seem to have evolved from practice, and the experience of those who teach and train adults; to some extent they are based on theories of adult learning and development; and they also reflect the need to establish a body of expertise which will give adult educators a professional identity distinct from those who work with young people; a dubious aim, in my view. But it may be useful to explore briefly the contrast between the prescriptive nature of such approaches, and the more contingent approach presented in this paper. How does the teaching and training of adults look in the light of the SISTEMA and MODERATES models?

It is difficult to define adult and adulthood. In modern, industrialised societies, it is a state and status which one arrives at over a period of years (roughly 16-21) although in the U.K. the age of 18 is increasingly regarded as the threshold of social adulthood. However, because initial, consecutive education for some people in further and higher education goes beyond that age, adulthood in education tends to connote people who have reached their twenties rather than late 'teens, even though courses may formally be open to the latter. Even if one takes the later age, the scope of adulthood is still extremely wide, covering perhaps 50 or more years of life. The concept of adult education is further complicated by the fact that historically in the U.K. it has been associated with non-vocational, non-credit courses of a liberal or recreational nature, although the scope of adult participation has now grown and widened to include virtually all forms of education and training (48). The historical connotations of 'adult education' in the U.K. have, however, made it necessary to introduce a different term (continuing education) to refer to vocational and professional education for adults.

The contingent approach suggests that the education and training of adults should be considered under three broad headings: who adults are; what they study; and where they study. The bulk of the writing on adult teaching and learning concentrates on the first, the adulthood of the students. This is typically explored in terms of a number of themes: age, experience, role, status and self-concept. Adults are obviously older than young students, but what difference does that make? The blanket assumptions about the decline of adult intelligence made in the early decades of the century have given way to a more

subtle and in some ways optimistic view. True, biological ageing may manifest itself in increasing problems in learning or performing some manipulative skills in one's 40s, with sight, hearing and short-term memory in one's 50s, and general fatigue and ill-health in one's 60s; and the general perception of 'slowing down' has a physiological basis. However, it is difficult to generalise, and much depends on how healthy and active, physically or mentally, the adult remains throughout his or her life. Many of the 'decrements' that show up in laboratory tests are small, and unlikely to affect learning in normal circumstances, especially if the adult can compensate for them in various ways, by using aids such as glasses or notes, or by drawing on his existing knowledge and skills. There is also a plus side: because adults have to organise and manage their lives, they may be better at managing their studies than younger people, and they have usually developed social skills which are useful in group learning situations.

This leads on to a second aspect of adulthood which is often discussed: the fact that adults are more experienced than younger people. Again, the rather simplistic initial view that this is an unalloyed benefit has given way to a more subtle appraisal. Experience can provide a good foundation for further learning, but it depends whether the person has learned to use and 'own' the experience, rather than regarding it as simply something that happened to him, whether the subject of study is close to experience (like literature) rather than remote (like physics), and whether the student's existing cognitive structure is flexible and open. In some cases, adults may have to 'unlearn' before they can learn (most obviously in amateur manipulative skills such as golf or guitar playing) or make the transition from using commonsense language and concepts to more analytic ones. The very fact that one has developed a reservoir of knowledge and a repertoire of skills can make one resistant to new learning.

Adults also clearly have more, and more complex and sometimes conflicting roles, than children. The child may be a sister, daughter, pupil, and friend; but the adult may have to combine and juggle the roles of sister, daughter, mother, spouse, employee, consumer, trade unionist, citizen, friend, and others. The role of 'student' or 'trainee' has to take its place among all these other roles, and it often affects and is affected by them, both in very practical ways, such as time-budgeting, and more complex ones, to do with expectations and behaviour on the course. It is not that adult students always study something related to their roles; sometimes they study to escape from those roles. But adults are rarely mainly students, and never merely students.

Beyond the specific roles that the adult has, there is a generalised sense of adult status, of being an adult. That status may depend partly on roles; for example, people who become unemployed may feel that it somehow affects their adulthood, and the mere fact of adulthood has not in the past prevented some adults treating others as actual or virtual slaves. But there seems to be a general consensus that, whatever roles the adult has or does not have, he or she is, in principle, an independent and autonomous being like oneself. In simple terms, this means that lecturers and trainers should treat adults as adults, and above all not 'talk down' to them. The normal conventions of adult relations have to be observed, and the essential autonomy of adults respected.

Finally, there is the idea that adults differ from children in having a more developed and firmer self-concept. Whoever they are and think they are, adults have some idea or image of themselves which will affect what they learn and how they learn it. The self-concept does not simply affect the present; it is an interpretation of one's past, and a projection into one's future as well. Thus adult students may feel that they are not capable of learning something because of what happened to them in school, and extrapolate this forward into potential learning situations. Adult teaching has to go through the self-concept rather than attempt to by-pass or ignore it, because the adult wants to preserve a coherent sense of himself; his learning is therefore always an aspect of his identity, whereas with the younger person that identity may still to some extent be provisional, segmented or incomplete.

The above points about adulthood simplify the concepts and arguments greatly, but it is clear that an approach to the teaching and training of adults can to some extent be based on an analysis of who the students are. But what about 'what they study'? It was noted earlier that adult education in the past was associated with certain kinds of subjects and courses, mainly non-vocational non-credit courses of a liberal or recreational nature. Adults are still more likely to study in such fields than younger people, and indeed in some cases such courses have led to the development of new fields of study, such as international relations and local history. There are also certain kinds of role education --- for example pre-parenting or pre-retirement courses --- which are obviously confined to adults. Adults are more likely to be involved in nonformal community education or development. Adult studies may or may not conform to conventional subject categories, and are sometimes organised around a problem or theme rather than a recognised discipline. In general, however, it is difficult to argue that what adults study is essentially different from what younger people study. Chemistry is chemistry and history is history whether it is taught to a fifteen or fifty year old. The motivation for learning, the style of teaching and the format and venue of the course may all differ, but the content will be similar. Some writers have attempted to link adult education to the notion of adult development, and thereby supply it with a distinctive rationale and character. Whatever one makes of the concept of development, and it often seems rather elusive, it is difficult to draw any clear curricular conclusions from it, since virtually any field of study or learning could be argued to be developmental for certain people at certain stages in their lives.

By contrast, where adults study --- the setting, context or environment --- is often distinctive, and indeed some of the differences attributed to adulthood are in fact differences in the setting of learning rather than the nature of the students. Adults learn in a much wider variety of physical environments than children, who are nearly always limited to school. Much education of adults takes place in educational institutions (including schools) but equally a great deal takes place in workshops, offices, libraries, church halls, hotels, coaches and in the open. The range of institutions is also much wider, going well beyond the overtly educational. Courses may or may not have admissions requirements and may or may not lead to qualifications. They are more likely to be part-time or one-off than full-time, and may be held during week-days, in the evenings, or at week-ends. They may be taught face-to-face, or at a distance, or both, by professional teachers and trainers or by

people who take on a teaching/training or facilitator role for that purpose only. Courses may begin and end outside or during the three conventional educational terms. There is sometimes an extremely mixed group of students, in terms of motivation, age, ability, and social and educational background. All these factors make the 'where' of adult learning very important in considering the 'how'.

In summary, the key contingencies in the teaching and training of adults seem to relate to who the students are and where they study rather than what they study, although the last may be significant in some cases. What are the implications for the functions of course planning and teaching/training identified in this paper? There is not room here to explore these in any detail, but the following brief notes may be useful as a point of departure. It should be stressed that the emphasis below is on those features which seem to differentiate or distinguish adult teaching and training from work with younger people; that the similarities in teaching older and younger people are probably as great as the differences; and that each point has to be interpreted in the light of all the relevant contingencies (the who, what and where) some of which may conflict with one another. For example, some educational and training settings seem to impose a more didactic or hierarchical approach to adult learners than the adulthood of such learners would of itself imply. In general, however, teaching and training adults involves what can be described as a shift in the centre of gravity of the process, away from the subject and institution and towards the student.

COURSE PLANNING

Selection

Selecting the right student for the course is typically more complex with adults than with younger people, since the validity of previous qualifications may decline with time, and one may want to take into account other factors such as aptitude, motivation and relevant experience. Selecting the right course for the student is even more complex, given the jungle of post-school provision and the difficulties of gauging adult needs, expectations and potential. This points to the need for adequate information, guidance and counselling for adult learners both before and during their studies. Where there are no formal admissions requirements, and courses are offically 'open', it is important to analyse the pattern of self-selection (and drop-out) to see what it reveals about courses and teaching. The absence of admissions requirements can lead to student groups which are extremely heterogeneous in terms of ability, motivation and educational and social background; this has implications for teaching. Some adult classes are more diverse than those in any other sector of education, and this may point towards more individualised forms of teaching and training.

Induction

Many adults return to systematic study after a period away from education and training, and hence need more careful induction than younger people, for whom there is more continunity. This induction may need to relate not only to the subject, but to the methods of study and learning, and the ground rules and tacit norms of the course and institution. In some cases, however, it is the self-directing adult group which creates its own climate and norms. Opportunities to discuss such things with other adult students can help break down any initial sense of isolation and uncertainty.

Structure

The structure of a course is determined not only by who studies it, but the nature of the subject and institutional factors. A firm structure can help the part-time student to develop a steady rhythm of work, although some flexibility in content and sequence may be necessary to accommodate different starting-points, learning paths and destinations. In some cases, however, the actual structure of what is learned will be determined by the group itself; it will be evolved and created rather than given.

Teaching

Adults can learn from the same range of methods as younger people can; the choice and mix depends on the situation, and no method should be excluded a priori. It is important, however, to give adults the chance to interpret new learning in relation to their existing cognitive structures, for example through discussion. Although the methods may be similar to those used with younger people, however, the implicit contract and basic relationship between teacher/trainer and learner is different, and implies a different style and attitude. The role of the teacher/trainer is more limited; the participation of the student is ultimately voluntary. While there may well be an affective element in the relationship --- respect, liking, dependence --- the relationship is better viewed as a limited contract or exchange freely entered into than an exercise in or of authority.

Environment

Adult students who have been away from a learning environment for some time may value this aspect of a course more than young people who have become blasé or fed up with it. For the adult, it may contrast with the educational isolation of the rest of his life, and provide a refreshing change of role. It is therefore doubly important that the learning environment is a good one, and some attention has to be paid to the social side of it.

Materials

Materials do not normally have to be prepared specially for adults, except where the existing materials are geared to young children (e.g. in literacy work) or inflexibly tied to a particular syllabus. The main problem for the adult learner is access to libraries and other resources, where the part-timer can be at a disadvantage. The main problem for the teacher/trainer is the time it takes to prepare special materials for 'tailored' courses which meet the needs of a particular group. Adults may sometimes be able to contribute useful materials to a course, and act as a resource in this and other ways.

Assessment

Many adult courses, both vocational and non-vocational, do not lead to a qualification, and involve no formal assessment (as distinct from informal evaluation and feedback). The students may not want a qualification, the course may be too short, or the sponsor (e.g. employer) regard it as a distracting irrelevance. Where qualifications are involved, modular-credit systems suit adults well because they allow them to accumulate and transfer credits over a period of time or across institutions. Adults often have considerable knowledge and skills without having the formal qualifications to validate them, and teachers and trainers should not underestimate their students in this respect.

TEACHING AND TRAINING

Motivation

The main problem here is not with those who enrol, but those who do not: the majority of the population. At the same time, the teacher or trainer needs to be careful that adults do not become de-motivated during the course. There may be problems of unreal and misplaced expectations at the beginning, and the motivation of the adult student may well change as the course proceeds. Many, though not all adults, want to see some material or psychic benefit from their studies sooner rather than later; as they get older, they become less aware of 'time from' (i.e. birthdays) and more aware of 'time to'.

Orientation

Adult students probably need more orientation than younger ones, first because they are entering a less familiar situation, and secondly because adults generally like to know where they are going and why. They are less likely to take things on trust, and display a blind faith that it will all come right in the end. They want to know the reasons for things, and tend to react against arbitrary or unexpected decisions.

Demonstration

Apart from problems with sight or hearing, there are no particular implications for adult students in this; although where demonstration is linked to practice, as it often is, it is worth remembering that adults typically do not liked to be rushed, and can become flustered if they are. Just as they have developed a set of ideas and beliefs, they may have established a characteristic pace and rhythm for doing things which does not change easily.

Explanation

Because adults have an elaborated cognitive structure, this is perhaps a more complex process than with children. The adult learner sometimes needs to go off on tangents in order to try to relate new and existing information; and the lecturer/trainer may have to search carefully for examples and analogies that will make sense to the group. The kind of language that is used is also crucial, and there may be a gap between the commonsense or vernacular language of the learners and the formal or analytic language of the teacher/trainer. In many adult classes or groups, it is more a matter of interpreting and exploring rather than explaining; the meanings are negotiated rather than given.

Representation

Although there is a tradition of the charismatic lecturer with a 'following' in non-vocational adult education, on the whole adults probably have less need of, and less time for, role models than younger people. They may develop a close relationship with the teacher/trainer, but that is not the same as identifying with him/her.

Activation

The same as for adults as for younger people; except that older adults who experienced very didactic and passive modes of learning at school may need to be weaned gradually away from their expectations and encouraged to be more autonomous, active and critical. Paradoxically, well-planned and executed teaching can be counter-productive if it leaves the learner with nothing to contribute; good teaching and training should be incomplete in this sense.

Transmission

Adults are usually much less tolerant of the mere transmission of information than younger people. They can be extremely selective in what they attend to, learn and remember, partly because of a sharper sense of time and priorities, partly because of the habit of screening out the daily media bombardment of information, partly because of a less deferential attitude to education and educators. Unless information impinges on adults' existing cognitive structures, it is unlikely to be absorbed.

Evaluation

Adults need just as much feedback and evaluation as younger people, and perhaps even more initially since they have fewer means of evaluating themselves as learners in isolation. Paradoxically, some of the conventions of adult life (such as politeness) restrict feedback, so there is a need for tact and care in this respect. It should be remembered that some forms of feedback and assessment (such as marks and examinations) which are 'normal' for children are much less so for adults. Feedback and evaluation should as far as possible take the forms which are normal in adult life and work rather than in school.

Support

It is doubtful if adults need any more or less support than children, but they are less likely to show the need for it, since the conventions of adult life often inhibit the expression of need and 'weakness', perhaps more among men than women. It is important to provide opportunities for adult learners to talk informally to one another and to the lecturer/trainer e.g. over coffee or after the class. They will often express their anxieties then, where they would not do so in the full group. In particular, adult students may worry about writing essays (which no one does in the normal course of adult life) and about taking examinations (which trigger the latent anxieties learned during school). Indeed, some adults not only become anxious about examinations, but feel ashamed that they are anxious. This has implications for the choice of methods of assessment.

APPENDIX D: CONTINUING LEARNING IN THE WORKPLACE

In Appendix C, it was suggested that two of the basic functions of management are investment, including investment in human capital, and innovation. Together, these two functions point to the importance of continuing education and training in the workplace, and the need to update, re-train and re-orientate employees to meet the demands of economic and technological change.

This need is increasingly widely recognised, and even though rhetoric still outstrips reality in many cases, there has been a rapid growth in the last five years of national, professional and organisational programmes of continuing vocational and professional education. This is both desirable and overdue, but the very attempt to develop institutional continuing education creates a danger that it will come to be thought of only formally and institutionally --- in terms of the training budget, the appointment of trainers, the number of courses or events provided, the development of training materials, the numbers of employees released, and so on. However, an as yet unpublished OECD study of large Japanese firms suggests that, contrary to what one might expect of organisations with lifetime employment and strong internal markets, their training budgets are not particularly large. This is partly a matter of accounting; for example, training travel costs are coded under 'travel' not 'training'. But it also reflects the fact that much of the continuing education and training that goes on in Japanese firms goes on informally, not formally. Managers and supervisors at all levels assume that training is a normal part of their managerial or supervisory functions; quality circles provide for regular mutual training in work teams, and far from being merely 'talking shops', are given the resources and support to bring about real changes; and there is a good deal of private study among employees at all levels, often by correspondance. All these are aspects of what might be called a learning culture, which pervades the organisation to such an extent that it becomes difficult to distinguish training from the normal processes of production. Given the inherent incompleteness of labour contracts, and the element of discretion in all work, the 'company culture' is a crucial, if elusive factor of production, and it is therefore very important to assess to what extent that culture is conducive to continuing learning. Obviously, company cultures will be affected by the wider culture in this respect, but even so it is likely that they will vary greatly within a particular society.

The models presented in this paper suggest some ways of exploring such company cultures. Clearly, the usual overt measures of the level of training will not do; in any case these are less reliable for small firms than large ones, precisely because training in the former is often less formalised. We need headings and measures which relate to learning and development, rather than education or training, and which will pick up the informal, experiential learning activity that may or may not go on in the workplace. If such measures could be refined, they would give a far better picture of the real level of continuing education and training in an organisation than the essentially surrogate, institutional measures that are currently used.

The functions of courses and teaching/training identified in this paper point to some key headings. Induction, teaching (though not necessarily formalised teaching or training), materials and environment are all important aspects of provision; motivation, orientation, explanation, demonstration, representation, evaluation and support are key aspects of informal teaching/training. The following questions (or something like them) which relate to such headings could perhaps be used as the basis of structured interviews with employees to explore the real level of continuing education and training in the workplace.

1. Do you find your existing knowledge and skills are enough to do the job, or do you continually have to add to them?

2. Have you spent the equivalent of at least one day's work over the past year learning some new work skills? To the point where you could pass them on to someone else?

3. Where and when did you acquire those skills? Was it formally or informally? Inside or outside the workplace? From people or materials?

4. Who do you generally go to with work problems or questions?

5. Do you model your approach to your job on anybody in particular?

6. Who is formally responsible for supervising and monitoring your work? Do you think of him/her as a trainer as well? Is he/she approachable?

7. Are you formally responsible for supervising and monitoring other people's work? How much time in a week would you spend explaining or showing things to them, or generally helping them to cope with their work?

8. How much time on average in a week do you and your colleagues spend discussing work problems or exchanging work information?

9. Can you think of any changes that have been made as a result of what you and your colleagues have discussed?

10. Can you think of any useful information or work skills that you have picked up outside work?

11. Would you say your work environment generally encourages or discourages continuing learning and development?

12. Do you think your organisation generally has changed a lot in the last five years ?

REFERENCES

1. Squires, G.T.C. (in press) Pathways of Learning: education and training from sixteen to nineteen. Paris: Organisation for Economic Co-operation and Development.

2. Hilgard, E.R. and Bower, G.H.(1975) Theories of Learning (4th Edn.). Englewood Cliffs: Prentice-Hall.

3. For a brief discussion of the differing implications of the different schools of theory see my previous paper in this series, The Analysis of Teaching (1982).

4. Rogers, C. (1969) Freedom to Learn. Columbus, Ohio: Merrill.

5. Eysenck, M. (1984) A Handbook of Cognitive Psychology. London: Lawrence Erlbaum.

6. Tough, A. (1971) The Adult's Learning Projects. Toronto: Ontario Institute for Studies in Education; and Tough, A. (1982) Intentional Changes. Chicago: Follett.

7. Tough, A. (1979) 'Fostering Self-Planned Learning' in OECD, Learning Opportunities for Adults Vol II: New Structures, Programmes and Methods. Paris: Organisation for Economic Co-operation and Development.

8. Tough, A.(1983) 'Self-Planned Learning and Major Personal Change', in Tight. M. (ed.) Adult Learning and Education. London: Croom Helm, pp.143-44.

9. Kolb, D. (1984) Experiential Learning. Englewood Cliffs: Prentice-Hall.

10. Keeton, M. et al (1976) Experiential Learning. San Francisco: Jossey-Bass.

11. Evans, N. (1987) Assessing Experiential Learning. London: Longman for the FEU.

12. Riegel, K.F. (1979) Foundations of Dialectical Psychology. New York: Academic Press.

13. Nottingham Andragogy Group (1983) Towards a Developmental Theory of Andragogy. Nottingham: University of Nottingham Department of Adult Education.

14. Argyris, C. (1982) Reasoning, Learning and Action. San Francisco: Jossey-Bass; and Schon, D. A. (1987) Educating the Reflective Practitioner. San Francisco: Jossey-Bass.

15. Illich, I. (1973) Tools for Conviviality. London: Calder and Boyars.

16. See my earlier paper in this series, Learning to Learn (1982), for a discussion of this point.

17. Rowntree, D. (1977) Assessing Students: How Shall We Know Them ? London: Harper and Row.

18. Coombs, P.H. and Ahmed, M. (1974) Attacking Rural Poverty: how nonformal education can help. Baltimore: Johns Hopkins University; Fordham, P. (1979) 'The Interaction of Formal and Non-Formal Education', Studies in Adult Education, 11(1), 1-11.

19. See the section on 'objectives-based designs, critiques and alternatives' in Richards, C.(1984) Curriculum Studies: an introductory annotated bibliography. London: Falmer Press.

20. MacDonald-Ross, M. (1975) 'Behavioural Objectives: a Critical Review', in Golby, M. et al (eds) Curriculum Design. London: Croom Helm.

21. Lindblom, C.(1959) 'The Science of "Muddling Through" ', Public Administration Review, 19, pp. 79-88.

22. Brown, G. (1978) Lecturing and Explaining. London: Methuen.

23. For the origins of 'social learning theory' see Bandura, A. (1971) Social Learning Theory. New York: General Learning Press. But the 'embodied' nature of thought is also a pervasive theme in the writing of some phenomenologists, such as Merleau-Ponty.

24. For a much fuller treatment of this concept in relation to learning, see Gear, J. (in press) Perception and the Evolution of Style: a new model of mind. London: Routledge and Kegan Paul; and Gear, J. (1987) Attention Affect and Learning (Newland Papers No. 13); in which the concept of orientation is applied to all forms of learning and expression.

25. There have been many studies of the participation and non-participation of adults in education. For a review of U.S. work see Cross, K.P. (1982) Adults as Learners. San Francisco: Jossey-Bass; and for the U.K. see ACACE (1982) Adults: their educational experience and needs. Leicester: Advisory Council for Adult and Continuing Education.

26. For a seminal paper on this, see Skinner, B.F. (1954) 'The Science of Learning and the Art of Teaching', Harvard Educational Review, 24, pp. 88-97.

27. Burns, R.B. (1982) Self-Concept Development and Education. London: Holt, Rinehart and Winston.

28. See Marton, F. et al (eds) (1984) The Experience of Learning. Edinburgh: Scottish Academic Press; and Entwistle, N. (1987) Understanding Classroom Learning. London: Hodder and Stoughton.

29. See DeVille, H. G. (1986) (Chr) Review of Vocational Qualifications in England and Wales: a report by the working group. London: HMSO; or any of the subsequent publications of the National Council for Vocational Qualifications.

30. Bloom, B. et al (1956) Taxonomy of Educational Objectives, Handbook 1: Cognitive Domain. London: Longman; and Krathwohl, D.R. et al (1964) Taxonomy of Educational Objectives, Handbook 2: Affective Domain. London: Longmans.

31. Gagne, R. (1969) The Conditions of Learning. London: Holt, Rinehart and Winston; and (1975) Essentials of Learning for Instruction. Hinsdale, Ill: Dryden Press.

32. The literature on small groups, both in and outside education, is vast, although much of the best work was published in the 1960s. A still useful introduction is Argyle, M. (1972) The Psychology of Interpersonal Behaviour (2nd edn.). Harmondsworth: Penguin.

33. See Snyder, B. (1971) The Hidden Curriculum. New York: Knopf; and Meighan, R. (1981) A Sociology of Educating. London: Holt, Rinehart and Winston.

34. Lord Robbins (Chr.)(1963) Higher Education (Report of the Committee under the Chairmanship of Lord Robbins). London: HMSO.

35. See my previous Newland paper Learning to Learn for some discussion of this.

36. See in particular Gibbs, G. (1981) Teaching Students to Learn. Milton Keynes: Open University Press.

37. For one classic statement of this view, see Highet, G. (1963) The Art of Teaching. London: Methuen.

38. For some general comments on the theory-practice relationship in organised knowledge, see Squires, G. (1987) The Curriculum Beyond School. London: Hodder and Stoughton. In teacher education, one recent discussion is Hirst, P.H.(ed.) (1983) Educational Theory and its Foundation Disciplines. London: Routledge and Kegan Paul.

39. See Ham, C. and Hill, M. (1984) The Policy Process in the Modern Capitalist State. London: Wheatsheaf/Harvester, pp.120-121.

40. For a discussion of the relationship between contingent and non-contingent theories of learning and teaching, see Bright, B. (1986) Adult Development, Learning and Teaching (Newland Papers No. 12). Hull: University of Hull School of Adult and Continuing Education.

41. Kelly, G.A. (1955) The Psychology of Personal Constructs. New York: Norton.

42. Baron, J. (1978) 'Intelligence and General Strategies,' in Underwood, G. (ed.) Strategies of Information Processing. London: Academic Press.

43. Simon, H.A. (1979) 'Information Processing Models of Cognition,' Annual Review of Psychology, 30, 363-96.

44. For a succinct statement, see Mayer, R.E.(1981) The Promise of Cognitive Psychology. San Fransisco: W.H. Freeman.

45. see inter alia, Boreham, N.C. (1987) 'Learning from Experience in Diagnostic Problem-Solving' in Richardson, J. et al (eds) Student Learning: research in education and cognitive psychology. Milton Keynes: SRHE and Open University Press.

46. see inter alia Knowles, M.(1970) The Modern Practice of Adult Education: from pedagogy to andragogy (2nd end.). Chicago: Follett;

(1984) The Adult Learner: a neglected species (3rd Edn.). Houston: Gulf: (1985) Andragogy in Action. San Francisco: Jossey-Bass; Chickering, A. W. et al (1981) The Modern American College. San Francisco: Jossey-Bass; Nottingham Andragogy Group (1983) Towards a Developmental Theory of Andragogy. Nottingham: University of Nottingham Department of Adult Education; Hartree, A (1984) 'Malcolm Knowles Theory of Andragogy: a critique', International Journal of Lifelong Education, 3(3), 203-10; Jarvis, P.(1984) 'Andragogy - a sign of the Times', Studies in Adult Education, 16, 32-38.

47. See for example Knox, A. (1977) Adult Development and Learning. San Francisco: Jossey-Bass; (1987) Helping Adults Learn. San Francisco: Jossey-Bass; Cross, K.P. (1981) Adults as Learners. San Francisco: Jossey- Bass; Brookfield,S.(1986) Understanding and Facilitating Adult Learning. Milton Keynes: Open University Press; and Rogers, A. (1986) Teaching Adults. Milton Keynes: Open University Press. The points made in Appendix C are based generally on these sources and the ones listed under (46); although it should be stressed that many of them are open to interpretation and debate.

48. See Squires, G. (1987) The Curriculum Beyond School. London: Hodder and Stoughton, pp. 176-213.